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QUARTERLY ECONOMIC COMMENTARY

by

T. J. BAKER and J. DURKAN

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CONTENTS

Note: In preparing the first three Sections of this paper, helpful criticism was received from the economic staff of the Institute, but the authors accept responsibility for the contents and conclusions of the paper and for the views expressed.

Section 5, The Joint Quarterly Industrial Survey, is prepared in conjunction with the Federation of Irish Industries, who also supplied the commentary to this Section.

In using the forecasts in Section 2 it should be remembered that economic forecasting is an inexact science, subject to many uncertainties. In particular, projections for periods more than six months distant should not be regarded as more than a broad indication of what might be expected to happen on the specific assumptions set out.

SECTION 1: SUMMARY

The forecast of National Accounts for 1969 in table 2.1 shows that most items have been revised upwards since the May issue. It is clear that inflationary pressures in the first half of the year were greater than then assumed. The level of credit in general and consumer credit in particular continued to rise at an extremely rapid rate in the second quarter, while in the light of the building pay settlement it now appears likely that the increase in industrial earnings this year will be nearer 12% than the 10% then forecast.

Thus even on the assumptions that credit is now more firmly under control, and that exports will grow rather more rapidly than was previously thought likely, a current external deficit of almost £70 million seems probable for 1969. At the same time the annual rise in the implied price of G.N.P. might be as large as 7% while the real growth rate, depressed by the maintenance dispute earlier in the year, is unlikely to be more than about 4%.

However it should be stressed that these revisions to the May forecast primarily reflect a reappraisal of developments in the first half of the year. So long as the credit assumption holds good, the second half of the year should see no further deterioration in the trade account, and a slight slackening in the rate of price increases.

Table 2.2 shows a projection of National Accounts for 1970, on the assumption that present policies continue. These assumptions are discussed in detail in Section 3. This projection shows a rapid rate of growth in 1970, as the economy continues to press against its limits of capacity production, and as it recovers from the effect of the 1969 maintenance strike. However, it seems all too likely that this high growth rate will be accompanied by continuing inflation, manifesting itself in a G.N.P. price rise of 6% and an external deficit of about £70 million for the second year running.

Of course such a projection is highly tentative and liable to considerable error in either direction even if its underlying assumptions prove justified. Nevertheless it seems sufficiently consistent and reasonable to throw into sharp relief the problems of economic management facing the authorities. The more technical aspects of these problems are discussed in §3.13, but the political choice is clear. If any credence can be placed on the projection, a further rapid growth is possible in 1970, with its concomitant benefits of expanding non-agricultural employment and maintaining the high rate of investment on which the future growth of the economy depends. Is this prospect worth the cost of a further considerable rise in prices and an external deficit which, if the capital inflow were to be reduced, would result in a dramatic fall in external reserves?

Allowing present trends to continue means running the economy with no safety margin. On the other hand, further restrictive action on top of the monetary tightening already undertaken would inevitably carry the risk of damaging confidence and reducing the rate of investment. The authorities would be helped in their choice if there were to be any genuine evidence of restraint by the community at large in claims for pay increases, higher guaranteed prices for agricultural products, or wider profit margins.

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TABLE 2.1: FORECAST NATIONAL ACCOUNTS 1969

	1968 Provisional	Change in 1969		1969 Forecast	Change in 1969		
					Price	Volume	
	£m	%	£m	£m	%	%	£m
A. Expenditure on Gross National Product							
Personal Consumer Expenditure	849	+12½	+108	957	7½	4½	40
Public Net Current Expenditure	164	+10½	+17	181	7½	2½	5
Gross Domestic Fixed Capital Formation	255	+22	+56	311	8	13	33
Exports of Goods and Services * ...	522	+10	+53	575	4	6	31
Physical Changes in Stocks:							
Agriculture	+5	—	+5	+10	—	—	+5
Other	+7	—	+6	+13	—	—	+6
FINAL DEMAND	1,802	+13½	+245	2,047	6½	7	120
Imports of Goods and Services * ...	542	+18½	+101	643	5	13	70
GROSS NATIONAL PRODUCT AT MARKET PRICES	1,260	+11½	+144	1,404	7	4	50
B. Gross National Product by Origin							
Agriculture, etc.—Total	196	+4	+8	204			
Non-Agricultural: Wages etc.	574	+14	+79	653			
Profits etc.	195	+10½	+20	215			
	769	+13	+99	868			
Other Income (including adjustment for price of stocks)	33	+6	+1	34			
NATIONAL INCOME	998	+11	+108	1,106			
Depreciation	91	+11	+10	101			
GNP AT FACTOR COST	1,089	+11	+118	1,207			
Taxes on Expenditure less Subsidies ...	171	+15	+26	197			
GNP at Current Market Prices	1,260	+11½	+144	1,404			
C. Balance of Payments	—20	—	—48	—68			

* Including factor flows. General Assumption: unchanged policies.
  Detailed Assumptions: see Section 3.

TABLE 2.2: PROJECTED NATIONAL ACCOUNTS 1970

	1969 Fore-cast	Change in 1970		1970 Pro-jec-tion	Change in 1970		
					Price	Volume	
	£m	%	£m	£m	%	%	£m
A. Expenditure on Gross National Product							
Personal Consumer Expenditure	957	+9	+88	1,045	5½	3½	34
Public Net Current Expenditure	181	+10	+18	199	7	3	5
Gross Domestic Fixed Capital Formation	311	+17	+53	364	7	9½	30
Exports of Goods and Services * ...	575	+11½	+65	640	3	8	45
Physical Changes in Stocks: Agriculture	+10	—	—2	+8	—	—	—2
Other	+13	—	+2	+15	—	—	+2
FINAL DEMAND	2,047	+11	+224	2,271	5	5½	114
Imports of Goods and Services * ...	643	+10½	+67	710	3	7	45
GROSS NATIONAL PRODUCT AT MARKET PRICES	1,404	+11	+157	1,561	6	5	69
B. Gross National Product by Origin							
Agriculture etc.—Total	204	+4½	+9	213			
Non-Agricultural: Wages etc.	653	+13	+86	739			
Profits etc.	215	+14	+30	245			
Total	868	+13½	+116	984			
Other Income (including adjustment for price of stocks)	34	+6	+2	36			
NATIONAL INCOME	1,106	+11½	+127	1,233			
Depreciation	101	+11	+11	112			
GNP AT FACTOR COST	1,207	+11½	+138	1,345			
Taxes on Expenditure less Subsidies ...	197	+9½	+19	216			
GNP AT CURRENT MARKET PRICES	1,404	+11	+157	1,561			
C. BALANCE OF PAYMENTS ...	—68	—	—2	—70			

* Including factor flows. General Assumption: unchanged policies.
Detailed Assumptions: see section 3.

SECTION 3: COMMENTARY

§3.1 *Introduction*

This issue of the commentary presents a preliminary and tentative view of what might be expected to happen in 1970 if present trends and policies continue. Before making such a projection however, it is necessary to determine what the trends are, and what position is likely to be reached by the end of 1969. Thus the greater part of the commentary is taken up with a reconsideration of the forecast for 1969 in the light of the latest information. This should not obscure the fact that the principal value of studying 1969 at this time in the year is the light such an exercise throws on the likely implications for 1970.

§3.2 *The Economy in* 1969. *General*

A revised forecast of National Accounts for 1969 is set out in table 2.1. Comparison with the forecast made in the May issue of the Quarterly Economic Commentary will show that in current price terms both domestic and to a lesser extent external demand have been revised upwards considerably. As we have seen no reason to revise substantially our estimates of the productive capacity of the economy, the constant price growth rate of GNP remains much the same at about 4 per cent. The greater money demand now foreseen therefore has had the effect of increasing the forecast rise in prices and imports. Between the two forecasts the projected price rise of G.N.P. has been raised from 6¼% to 7% and the projected level of imports of goods and services at current prices from £624 million to £643 million. Thus, in spite of the upward revision of exports, the current account deficit on the balance of payments in 1969 is now forecast to be £68 million as against the £57 million forecast in May.

Before proceeding to a consideration of 1970, it is necessary to consider the reasons for these revisions in the 1969 forecast, and to assess the likely position of the economy at the end of 1969.

§3.3 *External Demand*

The principal reason for revising the forecast of exports for 1969 is quite simply the additional information now available on the course of merchandise exports so far this year. When allowance is made for the fact that the method of recording exports adopted this year has resulted in the August figure understating the value for that month by about £2½ million compared with August 1968, total merchandise exports in the first eight months of 1969 were just over £22 million higher than in the first eight months of 1968.

This is an increase of 10.4%, and a simple extrapolation of this percentage increase would suggest an annual increase of a little over £33 million. There are several reasons however why such a simple extrapolation is inappropriate. Taking each quarter separately, total exports were higher than their 1968 levels by 7.5% in the first quarter, 14.6% in the second, and 7.8% (allowing for the recording delay) in July/August. Seasonally corrected, as shown in Table 6.2, total exports dropped below their fourth quarter 1968 level in the first quarter of 1969 and they recovered strongly in the second quarter to a record level, equivalent to an annual total of £389 million. The explanation

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of the fall in the first quarter is simple: the maintenance dispute. A drop in the seasonally corrected total of industrial exports due to that dispute coincided with an indifferent performance by agricultural exports. In the second quarter, industrial exports, especially to markets other than the U.K., recovered sharply. Not only was the impediment of the strike removed, allowing these exports to respond to the external demand level, but the total was probably also boosted by delayed deliveries which should have been made in the first quarter but for the strike. At the same time agricultural exports, which appear to be subject to mild random fluctuations, had a good quarter.

So far as can be judged from two months figures, total exports in the third quarter have fallen rather below the level achieved in the second quarter on a seasonally corrected basis. In the absence of a detailed breakdown for July and August it is impossible to be certain what has caused this interruption to the growth of exports. It is however possible, and indeed necessary, to speculate as to the causes, and thus as to the likely course of exports in the remainder of the year.

The first possibility is that the second quarter figures were swollen by deliveries delayed from the first quarter to such an extent that the July and August figures represent merely a return to the underlying trend. While it appears certain that the underlying level in the second quarter was not quite as high as it appears from the raw figures, it seems most unlikely that the backlog element was so large as to account for all the subsequent fall. A fair guess would seem to be that second quarter exports were increased by around £3 million by this factor, making the underlying annual equivalent level in that quarter between £375 and £380 million. The third quarter seems likely to be some way below this level.

The second factor depressing the summer figures is the recent strike at the Tynagh mines. This may have reduced exports in July and August by as much as £1 million. While September exports will also be affected by this cause, it should not affect fourth quarter exports. To this extent there should automatically be a recovery in that quarter as the constraint is removed, although by the nature of the operation it seems unlikely that there can be much "backlog" effect to boost future exports.

A third possibility is that there has been a temporary fall in agricultural exports, due to random factors or a changing seasonal pattern. U.K. import statistics indicate that this was the case, at least so far as live cattle exports to the U.K. were concerned. The provisional June livestock enumeration suggests that more cattle, including those of marketable age, were available than at the corresponding date in 1968. At the same time there is no sign of any break in price levels (beyond the normal seasonal fluctuations).

Thus if a fall in the volume of agricultural exports accounted for much of the summer export setback, it should merely have led to a temporary increase in stocks, and a full recovery later in the year, or at the worst in 1970, can be expected.

The next possibility would have more serious repercussions if it were the true explanation. This is that external demand for Irish products might have fallen since the second quarter. Fortunately there is no evidence of this. World trade as a whole is continuing to rise strongly, and U.K. imports, while certainly not rising rapidly, have continued to exhibit a modest upward trend on the basis of 3 month moving averages. There is some expectation of a temporary fall in U.K. imports in the fourth quarter of 1969, due purely to timing considerations concerning the possible removal of the import deposit scheme at the end of the year, but as the scheme itself seems to have had little impact on Irish exports to the U.K., there seems no good reason to suppose that its removal would have much effect either.

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The remaining possibility, also serious if true, is that inflationary pressures within the Irish economy are beginning to have a deleterious effect on exports. This could be either through bouyant home demand diverting goods from the export market, or through cost increases rendering some Irish industrial products uncompetitive in export markets. On this question there is no real evidence in either direction, but the structure of Irish industry, in which the export sector is to a considerable extent divorced from the domestic, and the record of industrial exports in recent years leave one inclined to believe that this explanation is unlikely to be of major importance in accounting for the July and August export performance. The FII-ESRI Industrial Survey for June indicates that manufacturers expected industrial exports to continue their expansion in the third quarter. Clearly the up-to-date figures for total exports, and the detailed trade statistics for previous months will need to be studied carefully over the remainder of the year for evidence as to which of these possible factors may have been present. In the meantime however it seems justifiable to attach most weight to the second and third possibilities, thus taking an optimistic interpretation of the July and August figures, and to assume a recovery in total merchandise exports in the remainder of the year. If it is assumed that fourth quarter exports will be rather above the seasonally corrected level achieved in the second quarter, an annual total of merchandise exports about £375 million seems the likely outcome.

This moderate upward revision of the merchandise export forecast must be partially offset by a downward revision in the forecast for invisible exports. Little change need be expected in the earlier forecast for most invisible items, but it would seem probable that the increase in tourist receipts will be less than previously anticipated. It is too early for a clear picture to have emerged, but a reduction in the forecast of invisible earnings of about £5 million seems a reasonable if arbitrary guess at this stage.

On this basis, a forecast for total exports of goods and services, including factor flows, of about £575 million for 1969 emerges. This is an increase over 1968 of £53 million compared with the rise of £45 million forecast in May. The revised forecast of exports is set out in Table 3.1.

TABLE 3.1: EXPORTS OF GOODS AND SERVICES 1968-1969

Category	1968 Actual £m	1969 Forecast £m	Change £m	%
Industrial: to U.K.	92.8	106	13	14
Other	56.7	77	20	35
Total	149.5	183	33	22
Agricultural	157.3	165	8	5
Misc. and Re-exports	25.7	28	2	8
Total Merchandise	332.5	376	43	13
Invisible*	(est.) 189.5	199	10	5
Total	(est.) 522	575	53	10

*Including factor flows

§3.4 Consumer Demand

The May forecast of domestic demand was based on the explicit assumptions of a rise in average earnings of 10% between the final quarters of 1968 and 1969, and a marked slowing down in the growth of bank credit after the first quarter of 1969. Recent pay settlements, particularly that in the building industry, have indicated that the pattern established by the maintenance dispute is likely to be followed more widely than was expected in the May Commentary. Moreover, the level of average weekly earnings in the transportable goods industries in the first quarter of 1969 was higher than had been assumed likely in the May forecast. At 260.4 the index was 13% above the level of the first quarter of 1968, and, seasonally corrected, 9% above the average level for the whole of 1968.

Thus it now seems more reasonable to expect a fourth quarter to fourth quarter rise in earnings of about 12% giving an increase in annual average industrial earnings of about 12½% over 1968. The rise in non-industrial wages and salaries seems likely to be rather less than this. Other things being equal, this revision could be expected to lead to an increase of roughly £5 million in the estimated level of personal consumption for 1969.

From information now available, notably the Quarterly Industrial Inquiry for the first quarter and the FII-ESRI Joint Quarterly Industrial Survey for June, it appears as if the increase in industrial employment in 1969 is likely to be greater than was assumed in the May forecast. As can be calculated from table 6.2., the mere continuation of the first quarter level (seasonally corrected) of employment in transportable goods industries for the rest of the year would mean an annual average increase of over 4% in this category. The Quarterly Survey and unemployment statistics for recent months both support the commonsense view that industrial employment is rising above its first quarter level, and that the annual average rise in manufacturing employment will be over 5%. Even with building and construction activity at a high rate, the growth in non-agricultural employment other than industrial is not likely to be as rapid as in industrial occupations. Nevertheless an increase in total non-agricultural employment of about 3% over 1968 now seems a fair estimate for 1969. This is about 1% higher than was assumed in May, and might account for an increase of about £4 million in the forecast level of consumption.

With regard to consumer credit, the May assumption that consumer credit would expand by only about £2 million per quarter in the remainder of the year has been proved completely wrong by the second quarter figures. The total of hire purchase and instalment credit outstanding (end quarter) and personal bank advances (mid-quarter) rose by £10 million or 8% between the first and second quarters of 1969. This brings the increase in consumer credit thus defined since the first quarter of 1968 to the astonishing total of 34% in 15 months.

Total bills loans and advances within the State (taking average figures for each quarter) rose by 21% between the first quarter of 1968 and the second quarter of 1969, as shown in table 6.1. The clear implication is that over the past year or so, not only has total credit been rising extremely rapidly, but the share in it of consumer credit has also grown sharply. This accords oddly with the Central Bank's recommendation throughout the period that priority should be given to lending for productive purposes.

No figures for consumer credit are yet available for the third quarter, but total bills loans and advances (unadjusted) within the State continued to rise in July and August

although at a slower rate than earlier in the year. From the latest advice of the Central Bank (assuming it is heeded better than previous advice) and from the associated banks' own liquidity position it seems likely that the expansion in bank credit will be very slow indeed in the remainder of the year. Moreover the borrowing requirements of the public authorities are such that an actual fall in private sector credit cannot be ruled out. On the other hand, much of the expansion in hire purchase and instalment credit appears to have been financed by an inflow of funds from abroad, and it seems possible that this could continue to expand even if domestic credit ceases to grow.

On the continuation of present policies therefore, but accepting the reality of the current squeeze on associated bank credit, the best guess for consumer credit in 1969 is that there might have been a further increase of about 2% in the third quarter, while the fourth quarter will see a virtual standstill. Compared with the May forecast this revision concerning consumer credit suggests an increase of over £20 million in personal expenditure, on the basis of Baker's retail sales model.* It is suspected however that this might overstate the effect of the credit variable, and certainly the total adjustment to the consumption total arrived at by summing the three adjustments outlined above seems implausibly high. Accordingly the credit adjustment has been approximately halved to £11 million giving a total upward revision of £20 million. This brings the increase in personal expenditure now expected in 1969 compared with 1968 to £108 million or 12¼%.

Approaching the problem through direct extrapolation of the retail sales index gives a similar result. The average quarterly rise in the index since the end of 1967 has been 3.0%. Assuming that the new index can meaningfully be linked to the old, extrapolation at 2½% for the third quarter and 2% for the fourth (to allow for the tightening of credit conditions) would leave the 1969 annual average about 12% above that for 1968. During the second quarter the index was 13.1% above its corresponding 1968 level, so this does not appear to be an unreasonable expectation. It is felt that the introduction of the new basis for the index this year may have had the effect of reducing the usual margin between the retail sales index and total consumption as a National Accounts item. Accordingly the projected rise in consumption is only half a percentage point higher than that for the retail sales index in the revised forecast.

As yet a further comparison, turnover tax receipts relating to the first 6 months of 1969 were 14.8% above their level for the corresponding period of 1968. In the past these figures have been found to overstate a little the increase in personal expenditure, so this rise appears to be consistent with the forecast made.

A considerable part of the increase in the forecast of personal expenditure will be absorbed in meeting higher prices. The consumer price index in August was 8.4% above its level a year earlier (so far as the new index can be compared with the old) and although the increase was slightly lower in the two previous quarters, it needs only a modest further rise in absolute terms, to 175.6 (at 1953 = 100) in November for the 1969 average to be 7¼% above that for 1968.

Even so, if current price consumption does rise by 12¼%, the constant price increase would be about £40 million, (£9 million greater than was estimated in the May forecast) and at between 4½ and 5% would show much the same rate of "real" increase in personal expenditure as in 1968.

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*T. J Baker. The Irish Economy in 1967, Appendix 2. E.S.R.I. Paper No. 39.

§3.5 Other Domestic Demand

The only change made in the other domestic components of Final Demand since the May forecast has been to increase the price rise and consequently the current price value of investment expenditure. This has been done because of both the building pay settlement and the rapid increase in the price index of building materials.

The Civil Service pay settlement for 1969/70 is broadly in line with the assumptions made in the May forecast, while there is no evidence to justify any change in the volume forecasts for public authorities current expenditure, gross fixed capital formation or stock levels. Accordingly these parts of the National Accounts table 2.1 have been carried over unchanged from the May forecast.

Thus the total increase in final demand which must be met by increased imports or greater G.N.P. in 1969 is now forecast to be £245 million or 13¼% at current prices, compared to the May forecast of £216 million or 12%. Of this 13¼% increase, it is forecast that 6¼% will represent price increases and nearly 7% a volume or real increase.

§3.6 Imports

On the basis of the above predictions of final demand, exports, earnings and prices, Leser's import function* suggests an increase for 1969 in total imports of goods and services (including factor flows) of £81 million; Leser's consistency model** suggests an increase of £76 million; and an updated version of Leser's recursive model*** places the increase at £91 million. All these figures, based on relationships derived from average performance over a number of years, appear to understate the likely increase in imports in the particular circumstances of 1969. This is because the first two contain lagged terms which attempt to compensate for the fact that imports rose in 1968 by more than final demand, when in fact no such compensation is called for in the present circumstances, and because none of them can take account of the exceptional purchases of aircraft in 1969.

However, the principal reason for not accepting the figures suggested by the models, and for revising upward the estimates made in May, is quite simply the evidence of the trade statistics so far this year. Merchandise imports for the first eight months of 1969 at £385.9 million were £64 million above their level in the corresponding period of 1968, a rise of almost 20%. Discounting the increase in imports of ships and aircraft, the rise is still of the order of 16.4%. With the expectation that personal consumption, industrial exports and fixed capital formation will continue to grow, albeit more slowly, above their second quarter level, and the knowledge that further imports of aircraft are due before the end of the year, a total increase for 1969 of almost £100 million in merchandise imports appears to be the likely order of magnitude. This would imply that by the end of the year merchandise imports, excluding ships and planes, would be running at an annual level of over £600 million.

The high level of interest rates and the heavy capital inflow of the last few years, which of course has increased the stock of foreign owned assets in Ireland, make a rise

*C. E. V. Leser. The Irish Economy in 1966. E.S.R.I. Paper No. 33.
**C. E. V. Leser. The Irish Economy in 1964 and 1965. E.S.R.I. Paper No. 27.
***C. E. V. Leser. The Irish Economy in 1967. Appendix 1. E.S.R.I. Paper No. 39.

in current invisible imports (including factor flows) seem very likely. Thus a fair forecast of total imports of goods and services for 1969 would be £643 million, an increase of £101 million or nearly 19% over 1968. On current indications about 5% out of the 19% seems likely to be due to higher prices. This would leave the volume increase at 13%, just marginally higher than the percentage increase in 1968.

§3.7 *Gross National Production*

The new projections of final demand, imports and prices, leave the increase in constant price G.N.P., considered as a residual, at exactly 4%, marginally higher than in the May forecast. The arguments set out in the May Commentary, suggesting that with most sectors of the economy working near normal capacity, the real increase will be limited to a capacity growth rate, less an allowance for output lost in the maintenance dispute, would still appear to be valid.

The replies of the June questionnaire of the FII-ESRI Industrial Survey (shown in Section 5 of this issue of Q.E.C.) show much the picture that would be expected, with production and sales having recovered in the second quarter, expectations that they will continue high in the third quarter, but with practically half the respondents reporting that due to supply constraints they could not have produced more than they did in the second quarter.

With the rise in real output restricted to 4% in the year, while the current price increase in G.N.P. predicted is almost 11½%, a G.N.P. price rise of about 7% is indicated. This seems a reasonable forecast in the light of the behaviour so far this year of both wholesale and consumer prices.

§3.8 *National Income*

The implications of the assumptions, projections and calculations made in arriving at G.N.P. from the expenditure approach on the income side of the National Accounts balance sheet are shown in part B of table 2.1. The breakdown of figures for this part of the table are even more tentative than those in part A.

It can be seen however that, on the projections made, non-agricultural wages and salaries will account for £79 million out of the total rise of £144 million in current price G.N.P. The rise of 14% in this item tallies with the assumptions of a 12½% rise in industrial earnings, a rather slower rise in other earnings, and an increase of about 3% in total non-agricultural employment. If the projections prove accurate, there will be a significant increase in the proportion of National Income accounted for by non-agricultural earnings, from about 57.5% in 1968 to just over 59% in 1969. This apparent large divergence between incomes in the agricultural and non-agricultural sectors is, of course, much reduced if considered on a per capita basis.

Reconsideration of the influence of the Budget measures, plus the extra bouyancy in consumer expenditure, suggest that indirect taxes are likely to rise more than was allowed for in the May forecast. With subsidies not expected to rise greatly, according to the Budget estimates, an annual increase in the item indirect taxes less subsidies of about 15% or £26 million now seems a fair forecast for 1969.

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Only minor revisions have been made to the May projection for other items in part B of table 2.1. The forecast increase in profits etc., which emerges largely as a residual in the exercise, is the same as in the May forecast. As explained then, it is felt that the impact of the maintenance dispute will have fallen more on profits than on wages.

§3.9   *Balance of Payments and External Reserves*

In the eight months to August 1969, the excess of merchandise imports over merchandise exports was £42 million higher than in the corresponding period of 1968 (after adjusting for the change in export recording procedures). On the assumptions made regarding invisible imports and exports (including factor flows), it seems possible that the current invisible account improved by about £6 million in the same period.

Thus the external deficit on current account appears to have been roughly £36 million greater in the first eight months of 1969 than in the same period of 1968. On the other hand the external monetary reserves fell by only £24 million between December 1968 and August 1969, compared with a fall of £19 million during the corresponding eight months of 1968.

The net capital inflow accordingly must have been about £31 million higher during January to August 1969 than in January to August 1968. The 1969 Annual Report of the Central Bank shows that the net capital inflow was in fact negligible during the first three quarters of 1968, but that it totalled £11 million in the final quarter. It thus appears that the net capital inflow for the year ended in August 1969 was of the order of £40 million or a little higher. This compares with annual totals of £31 million and £12 million for the calendar years of 1967 and 1968.

The composition of this £40 million imputed inflow is not known, but it presumably includes many items directly related to the investment boom, such as finance for aircraft purchases and direct industrial investment. It also contains the inflow of funds for certain types of consumer credit discussed in §3.4. With the lack of knowledge concerning the details of the flow, forward projections cannot reasonably be made, beyond the general hope that it will at least maintain its current level so long as the rapid expansion of the economy continues.

§3.10   *The Final Quarter of* 1969

Before proceeding to a consideration of 1970, it is worth summarising the position expected to be reached in the final quarter of 1969. This cannot be done in terms of National Accounts identities, as these are not calculated on a quarterly basis. However a presentation of key statistical series can demonstrate the relationship between the end of 1969 and the average for the year, and provide a starting point for projections of 1970 which can then be converted back into National Accounts terms. Table 3.2 sets out the projected fourth quarter and annual average levels of certain key variables for 1969 which arise from the earlier discussion.

Series 1961=100	Projected 4th Q. 1969 seasonally corrected	Projected Annual Average 1969	% increase 4th Q. over Annual Average
Retail Sales	179.0	171.5	4.3
Av. Earnings T.G. Industries	196.0	188.0	4.3
Employment T.G. Industries	120.1	119.1	0.8
Bills, loans, advances	232.4	226.3	2.7
Consumer Credit (1st Q. 1968=100)	136.5	132.6	2.9
Consumer Prices	146.0	143.1	2.0
Agricultural Prices	136.5	135.3	0.9
Import Prices	120.2	119.7	0.4
Export Prices	126.4	125.5	0.7
Merchandise Imports (value)	232.0	225.5	3.1
Merchandise Exports (value)	219.4	208.3	5.3
Import Excess	262.9	264.2	—0.5
Manufacturing Industry Production Volume	172.5	164.7	4.7

The table implies a marked levelling off in the rise of many of the series between the middle and the end of 1969. This is particularly true of the series relating to prices and credit. Imports, where the second quarter was inflated by shipments of aircraft, and where the post devaluation price rise is assumed to have come to an end, are also forecast to rise fairly slowly from the middle to the end of the year.

The series where a continuation of strong growth is indicated are retail sales and industrial production, in both of which first quarter levels were depressed by the maintenance dispute, earnings, and, most of all, exports.

If this reading of the situation is correct, the trade position will be no worse in the final quarter of the year than the average for the year as a whole.

§3.11   *The Economy in* 1970

The indicators shown in table 3.2 suggest that if the assumptions made concerning 1969 are correct, the level of economic activity will be only moderately greater in the fourth quarter than the average for the year as a whole. Thus merely holding fourth quarter 1969 levels throughout 1970 would lead to only a modest increase in the annual average achieved in 1970.

Obviously it would be unrealistic to assume such a stagnation of the end 1969 position throughout 1970. The key questions are, at what rates of growth should the various indicators be extrapolated through 1970 to arrive at a likely and consistent end

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1970 situation. From this it should be possible to make some estimate of the possible annual average rises in National Accounts terms.

With regard to what could be called the consumption indicators, the most important assumption to make concerns earnings. At this stage a rise of about 10% between the end of 1969 and the end of 1970 in average weekly earnings in the transportable goods industries would seem a fair expectation in the light of recent settlements. Such a rise would increase the annual average of industrial earnings by about 10.7%. In 1969 it appears as if many non-industrial wages and salaries are likely to rise by a rather smaller percentage than industrial, but it does not seem safe to expect a repetition of this pattern in 1970. Consequently an annual increase of about 10½% in all average earnings is assumed.

With the general level of activity assumed to continue its expansion in 1970, albeit at a slightly reduced rate, it is reasonable to anticipate a further rise in non-agricultural employment, perhaps by 3% in the course of the year, leading to a rise in the annual average of about 2¼%.

The continuation of present policies is taken to mean that credit in general and consumer credit in particular will be kept on a much tighter rein from the present time to the end of 1970 than in the past eighteen months. It is impossible to predict what effect, if any, the proposed change in banking practices to replace the overdraft system by one of term loans will have on the level of borrowing, but the more important point is that the liquidity position of the associated banks should prevent their lending behaviour diverging so far from Central Bank guidelines as in the past year. The assumptions made concerning credit in 1970 are that the levels of bills loans and advances and of consumer credit will increase by only about 6% between the end of 1969 and 1970, giving an annual average rise of about 6½%.

On the basis of these assumptions, the retail sales index could be expected to rise by about 7% in the course of 1970, giving an annual average rise of about 9%. This could be a reasonable expectation for total consumption.

With the effects of devaluation largely in the past, a slower rise in import and export prices seems probable. An increase in the course of the year of 3% in import, export and agricultural prices is therefore assumed, resulting in changes in the annual averages of around 2¼% in each. Consumer prices may rise rather more rapidly, but the assumption of unchanged policies precludes any major boosting of these by large increases in indirect taxation. A rise during the year of 4% would lead to an annual average of the consumer price index 5¼% higher than that likely in 1969. This would mean that for the second year in succession Irish domestic prices would have risen by considerably more than U.K. internal prices. As Geary and Pratschke* have shown, such divergences are very rare.

One of the key sectors in any forward economic projection is exports. N.I.E.S.R. of London forecast in August that U.K. imports will increase in value by only 3.5% in 1970 over 1969, and that most of this increase will be due merely to a temporary rise in the first quarter following the removal of the import deposit scheme. However, it

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*R. C. Geary and J. Pratschke. Some Aspects of Price Inflation in Ireland. E.S.R.I. Paper No. 40.

seems probable on latest indications that N.I.E.S.R. might have underestimated the likely growth in the U.K. economy in 1970. In this case U.K. imports, particularly of manufactured goods, seem likely to rise more rapidly than they suggest in the course of 1970. An increase in Irish Industrial exports to the U.K. at least as large as that achieved in the course of 1969 seems a reasonable expectation. There is a general expectation of some slowing down in the expansion of world trade as a whole in 1970, but Irish industrial exports to destinations other than the U.K. do not appear particularly dependent on the rate of growth of world trade. While the extremely rapid increase seen in 1968 and 1969 (which must have owed part of its impetus to devaluation) may not be repeated, nevertheless a substantial rise in these exports can be expected.

With stocks of cattle rising in 1969, and credit, to farmers as to the rest of the community, likely to prove difficult to obtain and expensive, some increase in the volume of agricultural exports can be anticipated. There seems no good reason at present to expect any dramatic change in agricultural prices during 1970, although such a change in either direction is always a possibility. An assumption of a small increase in agricultural export prices seems reasonable.

These various factors suggest that an increase of about 13% between the last quarter of 1969 and the same period of 1970 might be a reasonable expectation for merchandise exports. This would imply an increase of 14% in the annual total.

With estimated consumption and investment showing slower growth than in 1969, and with tight credit restricting stockbuilding, a projected rise of about 12% during 1970 seems reasonable for merchandise imports. With scheduled imports of aircraft much lower than in 1969, this growth rate would lead to an increase in the annual total of merchandise imports of about 11%.

The final quarterly indicator shown in table 3.2 was the volume of production in manufacturing industry. Projecting this forward through 1970 at a capacity growth rate of about $7\frac{1}{2}$%, the index would reach a seasonally corrected level (1961 $=$ 100) of 185 by the end of 1970, with an annual average of 180. Due to the fact that the 1969 average has been depressed by the strike in the first quarter, this would represent an annual increase of about 9%.

Turning to the items for which suitable quarterly series are not available, it is necessary to make direct projections of annual levels for 1970. The assumption of unchanged policies dictates that for Public Authorities current expenditure a similar rise as took place in 1969 is projected for 1970. It does not seem to be stretching the assumption too far however to project a slightly lower rate of expansion in public investment in 1970 than in 1969, particularly in view of the pattern of aircraft acquisition. With the postulated tightness in credit, a slight slackening of the growth in private investment also seems a reasonable expectation. Nevertheless while below 1969's exceptional rate of growth, the increase in total fixed capital formation is likely to be large while present policies continue. An increase of 17% at current prices and 9% in real terms seems a fair projection.

Invisible exports are more than usually difficult to forecast in the light of the potential impact on tourism of past and possible future trouble in the North. Without indulging in political speculation it seems fair to assume a less than usual rise in tourist

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receipts next year, while bearing in mind that an actual fall is not impossible. Thus a tentative projection of an increase of £12 million or 6% in total invisible exports (including factor flows) is made. This brings the increase in exports of goods and services assumed for 1970 to £65 million or 11¼%.

The impact of tighter credit is assumed likely to have an effect on the level of stock-building. It is assumed that the numbers of livestock will grow by a smaller amount than in 1969 and that non-agricultural stocks will increase by £15 million in 1970 compared with £13 million in 1969, in spite of the continued growth in both consumption and industrial production.

With regard to non-industrial production, it is assumed that the volume of agricultural production will continue its slow growth of about 2% in 1970, and that output of other sectors will grow more rapidly than in 1969, largely due to the inverted effect of the maintenance dispute. This factor also affects the income side of the National Accounts forecast, for whereas it is assumed that the dispute depressed the level of profits in 1969, the reversion to normal conditions assumed for 1970 ipso facto increases the annual increase in profits between the two years.

These various projections and assumptions are brought together in National Accounts form in table 2.2 on page 3. It hardly needs stressing that this projection is a highly tentative indication of what might happen on present trends and policies and in the light of reasonable expectations concerning external developments. It is not, as such, a forecast of what is actually expected to happen, as this will depend to a considerable extent on political decisions taken between now and the end of 1970.

Bearing this proviso in mind, it is interesting to note that the projections indicate a growth rate faster than that achieved in 1969 (largely because of the implicit assumption that there will be no major strike comparable to the maintenance dispute), a rather slower, but still considerable increase in prices, and a deficit on external account of roughly the same, large, order of magnitude.

§3.12   *General Synthesis*

The projected National Accounts tables for both 1969 and 1970 rest very strongly on the assumption that the period of extremely rapid credit creation came to an end during the summer of 1969, and that the level of credit will be kept under strict control until the end of 1970. On the other hand it is assumed that earnings will continue to rise, at a rate which historically is abnormally high, throughout both years. To some extent these assumptions are compensatory, in that a slower rise in earnings could be offset by a faster rise in credit, without materially altering the projections. It is less certain that the compensation could work in the opposite direction, as an actual fall in credit, offset by a still faster rise in earnings, could well have severe effects on confidence, and indeed on actual profits, thus leading to a sudden fall in the level of private investment. With regard to fiscal policy, the implicit assumption is that of neutrality, with no conscious effort to influence the level of effective demand through budgeting for either a surplus or a deficit; merely keeping taxation at a level where revenue meets expenditure requirements, which themselves show no dramatic shifts in real terms.

On these assumptions it appears that the economy reached a sloping platform in mid 1969, after recovering from the strike in the first quarter, and that from there to the end of 1970 it is possible that it can grow at its capacity rate with a moderate further increase in prices and little or no further deterioration in its balance of payments position.

In terms of annual changes in National Accounts identities the projections made on this basis accord reasonably well with past experience as contained in Leser's consistency model. This is illustrated in table 3.3 below.

TABLE 3.3: COMPARISON OF PROJECTIONS WITH CONSISTENCY MODEL

| | % increase on previous year | | | |
| | 1969 | | 1970 | |
	Model	Forecast	Model	Projection
Personal Consumption	9.3	12½	7.3	9
Government Consumption	14.0	10½	11.3	10
Gross Fixed Capital Formation	21.4	22	20.7	17
Exports of Goods and Services	14.6	10	11.8	11½
Final Demand (excl. stocks)	13.0	13	11.0	11
Imports of Goods and Services	14.1	18½	12.6	10½
Gross National Product	11.7	11½	9.7	11

The table suggests that in 1969 the pattern of economic expansion is more than usually orientated to personal consumption. The projected rises in personal expenditure and imports are both significantly greater, and in government consumption and exports significantly less, than would normally be associated with a 13% rise in final demand. This is not surprising in a year in which both wages and credit have risen sharply, and when there has still been a tendency for consumption to compensate for the period of 1966 and 1967 when it rose by considerably less than might have been expected.

For 1970 the table shows a closer correspondence between the model predictions and the actual projections made in table 2.2. The main interest here lies perhaps in the relationship of imports and G.N.P., in which the projected rise in the former is a little smaller, and in the latter a little larger, than suggested by the model. As explained in §3.11, these differences are largely due to the inverted effects of events in 1969, namely the exceptional level of aircraft imports and the production-disrupting maintenance dispute.

§3.13 Policy Implications

While there is plenty of time for events to prove the forecast for 1969 mistaken, it is probably too late for any conscious action taken by the authorities to have much effect on the out-turn for the year. A large balance of payments deficit on current account

seems certain, accompanied by a growth rate which, taking the disruptive effect of the maintenance strike into account, must be regarded as satisfactory.

Policy will presumably be more concerned with what might happen in 1970. If the analysis which has been presented here is accepted, it seems possible that 1970 could be a year in which rapid growth of the economy, with an associated increase in non-agricultural employment and a further large rise in investment could be continued. The penalty for this would be another very high external deficit, in the region of £70 million for the second year running, and a further considerable, although slightly moderated, rise in domestic prices.

The long term implications of these developments must also be kept in mind. While the long term benefits of high investment and a larger non-agricultural employment base in any particular year are self-evident, the longer term penalties of rising prices and large deficits are rather less obvious.

As discussed in previous issues of the Q.E.C., we feel that the short term damage to the balance of payments of rapidly increasing earnings and domestic prices have frequently been exaggerated. However, there can be little doubt that a prolonged continuation of cost and price increases which are faster than those in other countries must ultimately have an adverse effect on exports, leading to a situation in which the apparent real standard of living must be reduced, either through devaluation or a period of severe deflation. Tolerance of rising prices and large deficits for a number of successive years makes such a situation both more likely, and, when it comes, more painful. Rising pay and prices tend to lead to the creation of an inflationary psychology, in which the general expectation of increases becomes a self-fulfilling prophesy as the process accelerates. External deficits imply that the society is living, and the economy expanding, at a rate in excess of that supported by the economy's own resources. Once this excessive level has become accepted as normal, the adjustment back to a supportable level can be both psychologically and politically difficult, as recent experience in the United Kingdom has demonstrated.

Thus, even if they feel that the projected out-turn for 1970 would in itself be tolerable, the authorities responsible for economic management must consider whether there is a serious danger that it might bring in train these longer term disadvantages.

Apart from making their policy choice concerning the relative priorities of economic expansion and financial stability, the responsible authorities must also weigh a number of more technical factors.

In the first place it is necessary to consider the validity of the assumptions on which the projections presented in this commentary are based. In particular the conclusions reached rest very heavily on the assumption that the credit situation has been brought under control and will so remain, without however being subject to restrictions which go so far as seriously to damage business confidence. The Department of Finance, working with the Central Bank of Ireland, should be better placed than the outside analyst to assess the validity of this key assumption. The second major assumption is that there will be a slight, but nevertheless important, slackening in the rate of growth of money earnings over the next twelve months. For this to hold good it is necessary that there should be resistance to any attempts to re-open negotiations on the later stages of phased wage and salary settlements already reached.

The second factor of a technical rather than a policy nature which must be considered is the probable balance of error in the 1970 projection. As usual, this is an attempt to "best-guess" the outcome for the year on the basis of present policies and foreseeable trends. Also as usual however, it seems that major deviations from the forecast are more likely to be in an unfavourable than a favourable direction. While a massive upsurge in exports, an unexpected restraint in money wage demands, or an abnormal improvement in productivity can none of them be ruled out, such setbacks as an export recession, a major decline in tourism, further disruptive strikes, or still higher earnings settlements seem the less unlikely contingencies.

A third factor which needs to be considered in arriving at a policy decision is the size and nature of the capital inflow to be expected in 1970. There has been a heavy inflow of capital so far in 1969, so that the current account deficit, which seems already to be running at the near £70 million level forecast for the year, has resulted in only a modest loss of external reserves. Whether the inflow can confidently be expected to remain at this high level must be a key factor in any decision as to whether a second year with a deficit of around £70 million can be contemplated.

On the basis of their assessment of these technical factors the authorities can make their essentially political choice. If the projections presented here are reasonable, is a deficit of £70 million itself acceptable in the light of whatever capital inflow can be expected, and, if so, is there an adequate safety margin for unforeseen setbacks or sheer errors in projection? If not, what would be the appropriate action to reduce the pressure of domestic demand, and particularly personal consumption, without unduly depressing the level of investment, on which the long term growth of the economy depends?

Even at this stage, genuine moderation in income demands by all sectors of the community would undoubtedly help to solve this dilemma. A slower growth in money incomes than that assumed here would, in the present inflationary circumstances, probably result in an equally rapid growth in real incomes, while perhaps averting the very genuine danger of a serious interruption in economic growth which is implicit in any directly restrictive action which the authorities might feel obliged to take.

SECTION 4: A STUDY OF IMPORTS, PART 2. CONSUMER GOODS

by T. J. Baker and J. Durkan

§4.1 *Introduction*

In part 1 of this study[1] seasonally corrected quarterly totals of merchandise imports, disaggregated according to function, from 1958 to 1968 were presented. It was noted that although there were certain similarities in the pattern through time of the different categories, there were also sufficient divergencies for individual analyses of the major categories to seem worthwhile.

This analysis has proved more complex than had been anticipated, and consequently it has been decided to present the analysis of each major category separately. This second part of the study deals only with imports of consumer goods, and the remaining categories will be considered in further parts in subsequent issues of the Quarterly Economic Commentary.

The basic aim therefore of this part of the exercise is to apply regression analysis to the seasonally corrected quarterly data of imports of consumption goods, in an attempt to identify structural relationships and to obtain usable models for short term analysis and forecasting. This aim largely dictates the procedures followed. Various potential explanatory variables are chosen, and seasonally corrected where necessary. A brief consideration of the absolute values of these variables, which is of some help in establishing functional relationships, is followed by a much more detailed analysis in terms of percentage changes from quarter to quarter. Such analysis is not only a more rigorous test of functional relationships but is also of much greater value for purposes of prediction.

The usefulness of the results obtained, both in identifying structural relationships and as an aid to forecasting, is discussed in §4.8. Suggestions are also made for further study to clarify some questions thrown up by the analysis.

§4.2 *Imports of Consumption Goods, Potential Factors*

Throughout this section, consumption goods imports are defined as the combined total of the import categories food, drink and tobacco ready for use and other consumption goods ready for use. As it is difficult to suggest a different pattern of potential explanatory variables for the two categories, there is an obvious case for combining them. As in Part 1 of the study, consumer imports throughout are measured in value terms, c.i.f..

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[1] Quarterly Economic Commentary, May 1969, Section 4.

Before proceeding to the regression analysis, it is necessary to outline the reasons, theoretical and practical, for the choice of the potential explanatory variables adopted. The theoretical considerations primarily concern the identification of factors which a priori could be expected to influence the level of consumer imports; the practical considerations concern the availability and nature of statistical series representing these factors.

The factors which appear most immediately likely to determine the level of consumer imports are the level of total consumer demand, the degree of stock building of consumer goods within the distribution sector, the relative prices of home produced and imported consumer goods, and such special events as changes in tariffs and quotas, and the incidence of strikes.

Although studies in other countries show the behaviour of stock levels to be a crucial short-run determinant of imports, no quarterly series for stock movements exist in Ireland. For total consumption, the index of retail sales is the only series which has been available on a quarterly basis for a long enough period for econometric purposes. Although by 1968, immediately before its revision, this series was becoming somewhat suspect as a true measure of consumer spending, it is probably sufficiently reliable over the total period from 1961 to 1968 to justify its use. For relative prices the wholesale price index numbers for consumption goods and for imports of consumption goods are taken, with the former being divided by the latter to obtain an index of relative prices. Although far from ideal, the indices being based on different samples of goods, some competing, some not, this index of relative prices seems to possess enough meaning to be worth including in the analysis. With this price series already in the set, it appears redundant to include changes in tariff levels, as these should be reflected in relative prices. Changes in quota restrictions however are not implicitly contained in any of the other series, and therefore need to be allowed for explicitly. In the absence of any method of precise quantification this can be done only by the use of a dummy variable, arbitrarily assuming that each change in quotas was of equal importance. Similarly the effects of major strikes involving trade, notably the U.K. seamen's strike of 1966, and the U.K. dock strikes of 1967 can most simply be handled by a dummy variable.

Thus a set of equations can be tested relating imports of consumer goods to various combinations of the explanatory variables, the retail sales index, the comparative price index and dummies for quota restrictions and strikes.

However, because of some dissatisfaction with the retail sales index as an indicator of consumption, and also because the exercise has analytical interest in its own right, it has been decided to test a second set of variables. In this set the retail sales index has been replaced by factors which can be expected to influence the level of consumption. Earlier work on consumption in Ireland has suggested that among other factors, the levels of earnings, agricultural incomes and consumer credit have important effects on the level of consumption.

The level of earnings, the most obvious of these influences, and a key variable in any analysis or forecast of the economy, is best represented on a quarterly basis by the series of average weekly earnings in the transportable goods industries contained in the Quarterly Industrial Inquiry. Although this represents only the earnings in one sector of the economy, the assumption that earnings in the other non-agricultural sectors move roughly in line with it seems inherently reasonable.

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By their very nature, agricultural incomes are difficult to assess on a quarterly basis. The proxy used here, as in previous consumption studies, is the agricultural price index. Due to changes in the presentation of statistics it is not possible to construct a series for consumer credit for the period under investigation. Instead, alternative measures of total bank lending are taken, namely non-government bank debits, and bills loans and advances within the State. While each of these suffers from the disadvantage that it may not move in line with consumer credit, they possess the balancing advantage that they may reflect movements in stock levels, which, as was noted above, is a major gap in the available statistical series.

This second set of variables is completed by the relative price index as in the first set, and dummies for tariffs, to be used in combinations where the relative price index is omitted, quotas, strikes, and the impact of major changes in indirect taxes on the timing of consumer spending.

§4.3 *Regression Analysis, Absolute Levels*

Before progressing to more complicated analysis it is instructive to consider the relationships between the absolute levels of consumer imports and the retail sales index. A very simple test has been used, a linear regression of consumer imports on the retail sales index, alone and with a time variable, and for comparative purposes a simple linear regression of consumer imports on their level in the previous quarter. The results are shown in Table 4.1.

TABLE 4.1: CONSUMER IMPORTS, ABSOLUTE LEVELS, REGRESSION ANALYSIS

A. *Variables*
   Dependent Y   =consumer imports, seasonally corrected quarterly 1961–1968, £m
   Independent X_1=index of retail sales, seasonally corrected quarterly 1961–1968, 1961=100.
              X_2=time, 2nd Q 1961=1, 4th Q 1968=31.
              $X_3=Y_{t-1}$.

B. *Significance and Fit*

Equation No.	Independent Variables	Variables Significant at 1%	Variables Significant at 20%	R	F. Value	Standard Error of Estimate
A1	1,2	1	2	.970	225.8	1.13
A2	1	1	—	.968	441.4	1.14
A3	3	3	—	.952	282.6	1.40
A4	2	2	—	.948	225.4	1.46

C. *Regression Coefficients*

Equation	X_1	X_2	X_3	Intercept
A1	0.351	—0.181	—	—22.16
A2	0.256	—	—	—13.02
A3	—	—	1.028	0.02
A4	—	0.470	—	11.78

The usual bugbear of time series regressions, collinearity, is obviously present, with the results of equations A3 and A4 being nearly as good as those of A1 and A2.

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However, the fact that A2, the regression on the retail sales index, does give a better fit than either A3 or A4, while the multiple regression A1 is slightly better than any of the single-variable equations, suggests that there is some genuine relationship between consumer imports and the retail sales index.

The strength of the common rise through time, however, is such that it appears unlikely that either functional relationships or prediction models can be usefully derived from analysis of the absolute values of the series. Also the standard errors of estimate, at over £1 million or more than 5 per cent of the mean value of consumer imports, is too high for these equations to be much use for prediction. Accordingly the remainder of the analysis of consumer imports is conducted in terms of first differences, expressed as percentage changes over the previous quarter, for each series, other than the dummy variables. It is felt that the use of percentage changes is more relevant for prediction purposes, as well as being easier to handle computationally, than using logarithms of absolute first differences, which would give very similar results.

§4.4 *Regression Analysis, Percentage Changes, Set* 1

Linear regressions of the percentage changes from quarter to quarter of consumer imports and various combinations of the first set of variables described in §4.2 have been calculated. It will be recalled that in this set, the retail sales index is regarded as the most important variable, as a representation of the level of consumer demand. Both this series and that for relative prices are used in a lagged as well as a current form. On a priori grounds it is not felt that a lag of more than one quarter is likely to prove significant, so longer lags have not been tested.

The results of this analysis are set out in table 4.2. It can be seen that variables X_0 and X_1 both have a reasonable fit on their own, and remain significant at either the 1 per cent or 5 per cent levels in every combination tried. Not surprisingly the regression coefficient of X_0 remains fairly stable between the different equations, while that for X_1 appears stable at one level when X_0 is included in the equation and at another when X_0 is excluded.

Although X_3 fails to be significant at the 5 per cent or even the 10 per cent level throughout, and fails to improve the fit greatly, for example between equations B7 and B4, it is consistently significant at the 20 per cent level, and exhibits reasonable consistency in its regression coefficients. It is interesting that the sign of the coefficient is negative throughout. As the index is obtained by dividing the domestic price index by the import price index, this suggests that in the short run at least the demand for consumer imports is inelastic with regard to relative price.

The remaining variables, including the two lagged terms appear to have little or no significance, add practically nothing to the fit of the equations in which they are included, and exhibit very unstable regression coefficients. For either analytical or predictive purposes they can be disregarded, at least in the formulations used here.

Thus of the various equations tested in table 4.2 the choice for forecasting purposes would appear to lie between B4 and B7. Although the addition of the price variable X_3 does not greatly improve the fit, and although it is of only marginal significance, it is felt that it is nevertheless worth including, and accordingly B4 is regarded as the most

useful of the equations in the table. Although no calculations of the Durbin Watson statistics have been made, application of the simple Geary test* to the sign changes of the residuals suggests that there is no significant evidence of serial correlation in the residuals.

TABLE 4.2: CONSUMER IMPORTS, PERCENTAGE CHANGES, REGRESSION ANALYSIS.

A. *Variables*

Dependent Y = consumer imports, seasonally corrected quarterly 1961–1968, % 1st differences.

Independent X_1 = index of retail sales seasonally corrected quarterly 1961–1968, % 1st differences.

$X_2 = X_1$ t-1

X_3 = relative price index, seasonally corrected quarterly 1961–1968, % 1st differences.

$X_4 = X_3$ t-1

X_5 = Quota restrictions dummy variable, easing=1, no-change=0.

X_6 = Major strikes dummy variable, strike—, post strike+.

B. *Significance and Fit*

Equation No.	Independent Variables	Variables Significant at			Variables not significant at 20%	R	F. Value	Standard Error of Estimate
		1%	5%	20%				
B1	1,2,3,4,5,6	6	1	3	2,4,5	.879	11.90	3.89
B2	1,3,5,6	6	1	3	5	.877	10.12	3.75
B3	2,4,5,6	6	—	5	3,4	.843	14.07	4.20
B4	1,3,6	6,1	—	3	—	.876	26.27	3.69
B5	1,3	1	—	3	—	.726	13.95	5.14
B6	2,4	—	—	2	4	.219	0.63	7.29
B7	1,6	6,1	—	—	—	.870	39.09	3.67
B8	1	1	—	—	—	.712	26.79	5.14
B9	6	6	—	—	—	.831	n.a.	n.a.

C. *Regression Coefficients*

Equation	X_1	X_2	X_3	X_4	X_5	X_6	Intercept
B1	1.417	0.135	—0.680	—0.454	0.429	4.278	0.720
B2	1.323	—	—0.598	—	1.287	4.157	0.825
B3	—	—0.005	—	0.433	3.554	5.193	2.425
B4	1.412	—	—0.609	—	—	4.236	0.829
B5	2.945	—	—0.911	—	—	—	—1.447
B6	—	—0.888	—	0.503	—	—	4.050
B7	1.267	—	—	—	—	4.313	0.845
B8	2.770	—	—	—	—	—	—1.487

D. *Selected Equations*

B4 $Y_c = 0.83 + 1.412X_1 - 0.609X_3 + 4.236X_6$

B7 $Y_c = 0.85 + 1.267X_1 + 4.213X_6$

§4.5 *Regression Analysis, Set 1, adjustments*

Superficially the fit of equation B4, giving an R of .876 is adequate for forecasting purposes. Unfortunately however, a great deal of the fit is accounted for by the dummy

*R. C. Geary. Non Parametric Tests for Uniformity of Fit in Least Squares Regression. E.S.R.I. Memorandum Series No. 57.

variable for strikes, X_6. This is clearly an unsatisfactory situation. In an attempt to overcome it, the series for consumer imports has been adjusted to remove, as far as possible, the effects of major strikes. The regressions are then re-run on the adjusted series, without, of course, the dummy variable X_6.

In this adjusted set, the general level of fit is slightly lower than in table 4.2. This is not altogether surprising as the strike adjustment has the effect of considerably reducing the larger deviations of the dependent variable, and thus increasing the relative importance of some of the smaller unexplained deviations. Even so the R of the simple regression on retail sales in .647, and that of the multiple including all the independent variables is .701. The pattern of results is very similar to the unadjusted set, with X_1 being significant at the 1 per cent level in every combination, with its regression coefficient consistent at between 1.6 and 1.8. X_3 just fails to be significant at the 10 per cent level in each combination and its coefficient is stable at between—.75 and —.80. The other variables, the lagged terms and the quota dummy are in general not significant at even the 20 per cent level, and their contribution to R is not great. Thus the best equation from this adjusted set appears to be that for X_1 and X_3 only, which has an R. of .673, an F. value of 10.34, a standard error of estimate of 3.52 and no evidence of serial correlation. This equation can be designated B*.4., with Yc = 0.09 +1.744X_1 —0.755X_3.

The final test for set 1 of variables is to remove some of the random fluctuations by taking 3 quarter moving averages for each series (dropping the remaining dummy, which in any case has not proved significant so far). This procedure is useful in establishing structural relationships, although by its nature it is of limited value for forecasting purposes. The results are shown in Table 4.3.

It can readily be seen that equation C2 is the most satisfactory, although on the Geary sign change test it comes near to showing evidence of positive residual auto-correlation. With these smoothed series, X_3, the relative price variable, becomes significant at the 1 per cent level, and greatly improves the fit when added to X_1.

The main difference in the regression coefficients between table 4.3 and the earlier ones is the greatly increased negative value of X_3, which entails an increase in the positive value of the coefficient for X_1 when the two variables are included in the same equation. The coefficients of the lagged terms are far from stable, in spite of the fact that in some combinations these variables are significant at the 5 per cent and 10 per cent level, and it is impossible to escape the conclusion, unfortunate from a forecasting point of view, that in this general set of variables the lagged terms are of little or no analytical value.

Thus the conclusion of this section of the analysis must be that there is an undoubted relationship between the level of retail sales and consumer imports, and also that there does appear to be an inelastic relationship with relative prices. Furthermore the effects of major trade-disrupting strikes are so large that it is obviously essential to deal with them either by means of dummy variables or by adjusting them out of the series.

While the existence of functional relationships can be taken as fairly established, some reservations must be expressed concerning the use of the coefficients in equations B4, B*.4 and C2 for forecasting purposes. The degrees of fit obtained, while reasonable

for an analysis of first differences, are not particularly high, and the standard errors of estimate are larger than would be desired. Inspection of the residuals does not suggest that better results would be obtained by testing for non-linear relationships. It seems worthwhile therefore to proceed to analysis of the alternative set of variables, in which earnings rather than retail sales can be regarded as the key factor.

TABLE 4.3: CONSUMER IMPORTS, MOVING AVERAGE OF CHANGES, REGRESSION ANALYSIS

A. *Variables*

Dependent Y=consumer imports, adjusted for strikes, seasonally corrected, moving 3 quarter average of % 1 st. differences. 1961–1968.

Independent X_1=index of retail sales, seasonally corrected, moving 3 quarter average of % 1 st. differences.

$X_2 = X_{1\ t-1}$

X_3=relative price index, seasonally corrected, moving 3 quarter average of % 1 st. differences.

$X_4 = X_{3\ t-1}$

B. *Significance and Fit*

Equation No.	Inde-pendent Variable	Variables Significant at				Not signifi-cant at 20%	R	F.	Standard Error of Estimate
		1%	5%	10%	20%				
C1	1,2,3,4	1,3	—	—	—	2,4	.796	9.97	1.53
C2	1,3	1,3	—	—	—	—	.792	20.98	1.54
C3	1,4	1	4	—	—	—	.703	12.24	1.79
C4	1,2	1	—	—	—	2	.634	8.42	1.96
C5	2,4	—	—	2,4	—	—	.315	1.38	2.39
C6	1	1	—	—	—	—	.622	16.40	1.93

C. *Regression Coefficients*

Equation	X_1	X_2	X_3	X_4	Intercept
C1	2.210	—0.146	—2.037	—0.279	0.189
C2	2.149	—	—2.225	—	0.037
C3	1.806	—	—	—1.386	0.287
C4	1.749	—0.386	—	—	0.498
C5	—	0.792	—	—1.209	1.865
C6	1.586	—	—	—	0.194

D. *Selected Equation*

C2 Yc=0.04+2.149X₁—2.225X₃

$$C2\ \ Y_c = 0.04 + 2.149 X_1 - 2.225 X_3$$

§4.6 *Regression Analysis, Set 2*

This second set, in which the retail sales index is replaced by various more basic explanatory factors, has a large number of independent variables. In order to retain sufficient degrees of freedom for statistical significance in the equations, it is impossible to combine all nineteen of these variables together. However, several of these variables are alternative measures of the same factor, and so should not be included in the same equations in any case. The result of this situation, however, is that it has

been necessary to calculate a large number of regression equations in order to test which of the alternative series is the better for each of the factors concerned, as well as to test which combination of factors gives the best explanation of movements in the value of consumer imports.

To show the results of all the combinations calculated would be unnecessarily complicated. Accordingly table 4.4 sets out the results of 16 of the more interesting combinations, which are sufficient to illustrate the important conclusions of this stage of the analysis.

TABLE 4.4: CONSUMER IMPORTS, PERCENTAGE CHANGES, REGRESSION ANALYSIS

A. Variables

Dependent
Y =Consumer imports, seasonally corrected, quarterly 1961–68, % 1st differences.
Independent
X_1 =av. weekly earnings T.G. Inds., seasonally corrected, % 1st difs. $X_2 = X_{1\ t\text{-}1}$
X_3 =employment T.G. Inds., seasonally corrected, % 1st diffs. $X_4 = X_{3\ t\text{-}1}$
X_5 =agric. price index, seasonally corrected, % 1st diffs. $X_6 = X_{5\ t\text{-}1}$
X_7 =agric. price index, % change on corresp. Q. previous year. $X_8 = X_{7\ t\text{-}1}$
X_9 =bank debits, non-govt., seasonally corrected, % 1st diffs. $X_{10} = X_{9\ t\text{-}1}$
X_{11}=bills, loans, advances, within state, seasonally corrected, % 1st diffs. $X_{12} = X_{11\ t\text{-}1}$
X_{13}=relative price index, seasonally corrected, % 1st diffs. $X_{14} = X_{13\ t\text{-}1}$
X_{15}=quota restrictions, dummy variable.
X_{16}=tariff reductions, dummy variable.
X_{17}=special import levy, dummy variable.
X_{18}=turnover and wholesale tax, dummy variable.
X_{19}=major strikes, dummy variable.

B. Significance and Fit

Equation No.	Variables Significant at				Not Significant at 20%	R	F. Value	Standard Error of Estimate
	1%	5%	10%	20%				
D1	19	—	6,4	1,5,18,15	2,3,9,10,13,14	.910	5.53	4.00
D2	19,12	18,3	5,1,15	11,13,4	2,6,14	.949	10.37	3.04
D3	19	12,18	13,4	1,3,15	2,7,8,11,14	.938	8.48	3.33
D4	19,12	18,15,5,3	1,17,11,2	16	4,6	.956	12.19	2.83
D5	19	18,11	5	3,15,1	—	.898	10.46	3.66
D6	19,12	15,2	4	18	6,14	.919	13.67	3.28
D7	19,18	11	5,17	16,3,15	1	.918	11.35	3.39
D8	19,12	15,18,2	17	4,16	6	.934	14.49	3.05
D9	19	12	18,1	4,2	3,11	.913	12.54	3.40
D10	19	—	18,4	3,1	2	.878	12.32	3.80
D11	19	—	4	—	1,2,3	.864	13.53	3.91
D12	18	—	—	1	2,3,4	.607	2.68	6.17
D13	—	—	—	—	1,2,3,4	.233	0.35	7.40
D14	19	18	—	1	—	.866	24.95	3.73
D15	19	—	18	—	2	.859	23.42	3.82
D16	19	—	—	—	—	.841	n.a.	n.a.

C. Selected Equation

D8 $Yc=0.39-0.79X_2+1.03X_4-0.06X_6+1.10X_{12}+5.40X_{15}+1.93X_{16}-3.85X_{19}+3.46X_{18}+4.77X_{19}$

The list of variables shows that there are three cases of alternative series for the same factor. Agricultural prices can be shown as either X_5 and X_6 or X_7 and X_8, credit by either X_9 and X_{10} or by X_{11} and X_{12}, and prices by either X_{13} and X_{14} or by the dummy variables X_{16} and X_{17}.

Comparison of the first four equations shows that of the credit variables X_{11} and X_{12} are considerably better than X_9 and X_{10}, that of the agricultural series, X_5 and X_6 are rather better than X_7 and X_8, and that for prices, the dummies X_{16} and X_{17} give better results than X_{13} and X_{14}. This finding is confirmed by other equations not shown in the table. Accordingly the inferior series of X_7, X_8, X_9, X_{10} are dropped from further consideration. In the case of prices the inherent superiority of a continuous series over intermittent dummy values has led to the retention of X_{13} and X_{14} for further study in spite of the better performance of the dummies.

The other obvious feature of the first four equations shown is the high degree of fit obtained, particularly by D_2 and D_4. However, part of this is due simply to the large number of variables included and equations containing thirteen independent variables have obvious disadvantages for forecasting purposes. In order to find more manageable combinations, as well as to test the importance of individual variables, the remaining equations gradually drop many of the series.

The main conclusions to be drawn from part B of table 4.4 seem to be as follows. The strike dummy X_{19} is significant at the 1 per cent level in every combination in which it appears, and even on its own goes a long way towards explaining the behaviour of the dependent variable. However, the addition of certain other variables does improve the fit considerably, and in particular X_{12} and X_{18} are generally significant at the 10 per cent level or less. In contrast to the previous set of variables, lagged terms do show significance in this set, and in fact the equations including only lagged terms and dummies, D6 and D8, are among the most successful, and clearly better than their counterparts D5 and D7 which are in current terms only. X_1, which was expected to be the main explanatory variable, apart from the dummies, performs surprisingly badly, being significant at the 10 per cent level only three of the equations. As equations D12 and more particularly D13 show, results are very poor when the strike dummy X_{19} is dropped.

For simplicity's sake, the coefficients of the variables are not shown in the table, but nevertheless they are of some interest. For the dummies the signs are all as expected. The credit variables X_{11} and X_{12} show positive coefficients in all cases, which is what would be expected. The current earning variable X_1 and the lagged employment variable X_4 similarly have the expected positive coefficients, and the relative price variables show negative coefficients as in the previous set. The remaining variables, X_2 X_3 X_5 and X_6 all show either unstable coefficients or have negative values where one would expect positive. None of these variables is consistently significant, as can be seen from part B of the table, but even in the combinations where one or more of them is significant, the signs of the coefficients remain perverse.

In total the results shown in table 4.4 can be regarded as quite encouraging with equation D8 probably the most useful for forecasting but as in Table 4.2 the influence of the strike dummy is so great that it tends to obscure other relationships. Accordingly the next step is to eliminate it by using strike-adjusted figures for consumer imports.

The results of this exercise are shown in table 4.5. The fit when all variables are included is quite good, but it falls fairly rapidly as variables are dropped. As might be expected from the previous table the indirect tax dummy X_{12} and the lagged credit variable X_8 show good significance throughout. The significance of the other variables differs considerably from one equation to the next. Somewhat surprisingly the lagged employment variable X_4 performs less well than in table 4.4. Once again the supposedly main variable, X_1, performs rather badly.

TABLE 4.5: CONSUMER IMPORTS, ADJUSTED PERCENTAGE CHANGES, REGRESSION ANALYSIS

A. *Variables*

Dependent Y=consumer imports, adjusted for strikes seasonally corrected, % 1 st. differences.
Independent
  X_1 =average weekly earnings, T.G. industries, seasonally corrected, % 1 st. differences.
      $X_2 = X_{1\,t-1}$
  X_3 =employment in T.G. industries, seasonally corrected, % 1 st. differences. $X_4 = X_{3\,t-1}$
  X_5 =agric. price index, seasonally corrected, % 1 st. differences. $X_6 = X_{5\,t-1}$
  X_7 =bills, loans, advances, seasonally corrected, % 1 st. differences. $X_8 = X_{7\,t-1}$
  X_9 =relative price index, seasonally corrected, % 1 st. differences. $X_{10} = X_{9\,t-1}$
  X_{11} =quota restrictions, dummy variable.
  X_{12} =turnover and wholesale taxes, dummy variable.

B. *Significance and Fit*

Equation No.	Variables Significant at				Not Significant at 20%	R.	F. Value	Standard Error of Estimate
	1%	5%	10%	20%				
E1	8,12	11,3	5,2	7,1,9	4,6,10	.842	3.26	3.19
E2	12	8,9	7	1,3	2,4	.753	3.28	3.48
E3	12,8	9,11	—	4	1	.742	4.49	3.39
E4	12	7	9	—	1,3	.651	3.39	3.75
E5	12	—	8,1	2	4,6	.656	2.76	3.81
E6	12	—	8	—	2,4,6	.613	2.77	3.90
E7	12	8	—	1	4	.629	3.93	3.76
E8	—	—	8	1	4	.357	1.22	4.42
E9	—	—	—	—	1,4	.163	0.36	4.58
E10	—	8	—	1	—	.357	1.90	4.34

C. *Regression Coefficients*

Equation No.	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}	Inter-cept
E1	0.46	—0.70	—2.00	0.78	—0.53	0.02	0.61	1.25	—0.78	0.10	7.21	5.66	—1.03
E2	0.44	0.07	—1.18	0.59	—	—	0.67	0.97	—1.67	—	—	7.68	—1.71
E3	0.26	—	—	0.85	—	—	—	1.01	—1.46	—	4.02	5.93	—0.76
E4	0.26	—	—0.82	—	—	—	0.78	—	—	—	—	7.16	0.72
E5	0.53	—0.47	—	0.63	—	0.14	—	0.79	—	—	—	5.43	—0.01
E6	—	—0.35	—	0.56	—	0.09	—	0.70	—	—	—	5.42	1.11
E7	0.44	—	—	0.22	—	—	—	0.71	—	—	—	5.53	—0.20
E8	0.41	—	—	0.07	—	—	—	0.82	—	—	—	—	—0.13
E9	0.31	—	—	0.47	—	—	—	—	—	—	—	—	1.88
E10	0.41	—	—	—	—	—	—	0.82	—	—	—	—	—0.12

D. *Selected Equations*

  E1 Yc=—1.03+0.46X_1—0.70X_2—2.00X_3+0.78X_4—0.53X_5+0.02X_6+0.61X_7
        +1.25X_8—0.78X_9+0.10X_{10}+7.21X_{11}+5.66X_{12}
  E3 Yc=—0.76+0.26X_1+0.85X_4+1.01X_8—1.46X_9+4.02X_{11}+5.93X_{12}

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The signs of the coefficients are much the same as in table 4.4, with X_2 and X_3 remaining perversely negative. Even the size of most coefficients remain of the same order of magnitude as in table 4.4.

Equation E1 has an adequate fit for forecasting purposes, but 12 variables is rather many to handle. E3, with only 6 variables, may be more suitable, despite its lower fit. For analytical rather than forecasting purposes the results of table 4.5 are sufficiently encouraging for it to seem worthwhile to examine the relationship between moving averages of the variables, thus ironing out some of the random fluctuations and removing the two dummy variables X_{11} and X_{12}. The results are set out in table 4.6.

TABLE 4.6: CONSUMER IMPORTS, MOVING AVERAGE OF CHANGES, REGRESSION ANALYSIS

A. Variables

Dependent Y=consumer imports, adjusted for strikes, seasonally corrected, moving 3 quarter average of % 1 st. differences 1961–68.
Independent $X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, X_9, X_{10}$, as in table 4.5, moving three quarter averages of % 1st differences.

B. Significance and Fit

Eq. No.	Independent Variables	Variables Significant at				Not Significant at 20%	R.	F. Value	Standard Error of Estimate
		1%	5%	10%	20%				
F1	1,2,3,4,5,6,7,8,9,10	—	7,5	9,6	—	1,2,3,4,8,10	.814	3.34	1.77
F2	1,2,3,4,7,8,9	—	7	—	8,1,9	2,3,4	.765	4.02	1.81
F3	1,3,5,7,9	7	5,9	—	—	1,3	.768	6.34	1.72
F4	2,4,6,8,10	—	8	10	1,6	4	.648	3.19	2.04
F5	1,2,4,8,9	8,1	2	—	—	4,9	.715	4.61	1.87
F6	1,4,6,8	—	8	—	1	4,6	.551	2.51	2.19
F7	1,2,5,7	7	5,2	1	—	—	.739	6.92	1.77
F8	1,2,4,7	7	2	1	—	4	.689	5.20	1.90
F9	1,4	—	—	—	—	1,4	.138	0.24	2.49
F10	1,2	—	1,2	—	—	—	.377	2.07	2.33
F11	1,3,7	7	—	3	—	1	.645	5.71	1.96
F12	1,4,8	8	—	—	1,4	—	.551	3.48	2.14
F13	1,8	8	—	—	—	1	.531	4.90	2.13
F14	1,7	7	—	—	—	1	.600	7.02	2.01

C. Selected Equations

F1. $Y_c = -0.91 + 0.40X_1 + 0.17X_2 + 0.72X_3 - 0.77X_4 - 1.02X_5 + 0.93X_6 + 1.45X_7 - 0.07X_8 - 1.69X_9 - 0.50X_{10}$

F3. $Y_c = -1.62 + 0.28X_1 + 0.51X_3 - 0.56X_5 + 1.88X_7 - 1.44X_9$

Provided at least one of the credit variables is included, the results seem reasonably satisfactory in terms of R, F value and Standard Error. With these smoothed series the lagged terms perform rather worse than the current, as can be seen from a comparison between equations F3 and F4. Even in this form, however, the performance of X_1, average earnings, is surprisingly poor, its simple correlation with consumer imports being only .136, and its contribution to fit in various combinations being modest. Except for the current smoothed credit series X_7 the coefficients of the variables are less stable than in most previous tables. There is still, however, a tendency for X_1 and X_7 to be positive and X_5 and X_9 to be negative, perversely so in the case of X_5. In the case of employment there is a tendency for X_3 and X_4 to have exchanged signs when compared

with earlier tables, with the current term now positive and the lagged term negative, although it must be noted that in most cases neither of them is significant according to part B of the table.

On the whole it would appear that the most useful equation from this table is F3, which relies entirely on current terms, although the addition of the lagged terms, as in F1, does improve the fit somewhat. In neither case does there appear to be any problem of residual autocorrelation.

§4.7 *Forecasting Tests*

In the course of the analysis nine equations have been specified as appearing to possess some potential for forecasting. It is possible to assess the performance of these equations in "predicting" consumer imports in the first quarter of 1969, and in some cases also in the fourth quarter of 1968, periods which were not included in the compilation of data for the analysis. It is unfortunate that neither of these periods, but particularly not the first quarter of 1969, is really suitable for such a test. Both quarters are affected by the increase in wholesale tax at the beginning of January. Although this is covered in some of the equations by a dummy variable, it is unsatisfactory to test in a period for which a large part of the predicted change is determined by an arbitrarily valued dummy variable. More important, the first quarter covered the period of the maintenance men's strike, which common sense suggests must have raised temporarily the level of consumer imports. Thus, on a priori grounds, one would not expect a particularly close concordance between predicted and actual values of consumer imports for these periods. The results for the nine equations are shown in table 4.7.

TABLE 4.7: CHANGE IN VALUE OF CONSUMER IMPORTS

Equation No.	4th Q. 1968			1st Q. 1969			
	Actual	Predicted	Residual	Actual	Predicted	Residual	Effect of tax dummy
	%	%	%	%	%	%	%
B4	+3.45	+5.83	—2.38	+3.00	+0.99	+2.01	n.a.
B7	+3.45	+5.79	—2.34	+3.00	+1.64	+1.36	n.a.
B4	+3.45	+6.26	—2.81	+3.00	+0.29	+2.71	n.a.
D8		n.a.	(—0.57)	+3.00	—2.55	+5.55	3.46
E1		n.a.	(—0.96)	+3.00	—5.33	+8.33	5.66
E3		n.a.	(—3.65)	+3.00	—4.21	+7.21	5.93

	4th Q 1968, centred moving 3 quarter average		
	Actual	Predicted	Residual
C2	+4.78	+2.69	+2.09
F1	+4.78	+4.33	+0.45
F3	+4.78	+4.96	—0.20

It can readily be seen that, as expected, the predicted results for these two quarters are not very accurate. It is interesting to note that all the residuals for the fourth

quarter of 1968 are negative (including those for equations D8, E1 and E3 where this quarter is included in the data for the original analysis). Conversely all residuals for the first quarter of 1969 are positive. Part of the positive residual in the case of equations D8, E1 and E3 can probably be ascribed to the dummy variable for the wholesale tax change working too strongly in this instance, but even if this is taken into account a considerable positive residual remains in each case. It seems reasonable to ascribe part of this to the stimulating effect of the maintenance dispute on imports of consumer goods.

The results for the three equations based on moving three quarter averages seem much better than those for the individual quarters on the basis of this test. However, it is clearly necessary to test all the equations over a longer period, as later figures become available, before their usefulness as predictors can properly be assessed.

§4.8 *Conclusions*

Viewed as an analytical exercise concerned with establishing the existence of relationships, the series of regressions described in this study can be regarded as reasonably successful. The use of first differences is a very rigorous test of relations between time series, and the degrees of fit and significance obtained in many of the equations are good in this context. This is especially so if one bears in mind the doubts expressed in §4.2 about some of the data used, and the complete absence of any information on the key factor of retail and wholesale stock levels.

In addition to demonstrating the effects of such obvious exceptional events as trade disrupting strikes and major changes in the indirect tax structure, it seems fair to claim that the analysis has established clear associations between the value of consumer imports on the one hand, and the retail sales index, relative prices, and bills, loans and advances within the State on the other. Of course, these associations must not be taken as being necessarily causative.

It seems probable that total consumption (measured by the retail sales index) and consumer imports both react to much the same causative factors. The relationship with credit (represented by bills, loans and advances) may be partly causative, in that rising credit can finance both greater consumer spending and the holding of larger distributive stocks, but equally there may be occasions when both credit and imports are reacting jointly to other expansionary factors. When a longer run of information (on a comparable basis) concerning the breakdown of total bank advances is available, this matter could usefully be investigated further.

With regard to prices the position seems even more complicated. At first sight the negative correlation observed throughout between imports and relative prices seems perverse, in that one might expect the value of imports to rise when home prices rise relative to import prices, and to fall when the relative price falls.

It is possible that the explanation is that the relative price index used forces into one series information on various types of price change, to each of which imports react differently. Thus it seems plausible that the value of imports would tend to rise in response to a rise in domestic prices, due to substitution; rise in response to a rise in import prices, due to the inelasticity of demand for imports; and fall (at c.i.f. values) in response to increased tariffs (which are included in the wholesale price index of imports).

If all these tendencies operate, but the second is stronger than the other two, it would account for the negative correlation observed in the analysis. It would be possible to test this hypothesis by further analysis, but this would be quite a major piece of work in its own right, and, given the reservations concerning the available price data, there is no guarantee it would be successful.

The variables which can most reasonably be regarded as casual, namely earnings, employment and agricultural prices, have not on this analysis been proved associated with consumer imports. It seems obvious that in some way they must be related, but the relationships are not sufficiently simple to be demonstrated by the methods adopted here. The explanation of this probably lies partly in the absence of stock data and partly in the phenomenon of variable time-lag effects. Thus a rise in, say, earnings is some-times reflected in an immediate rise in consumer imports while on other occasions there may be a considerable delay before the effect is felt.

Although the direct link with earnings has not been established here, the most significant finding from a policy viewpoint is probably the nature of the association with the retail sales index and bills, loans and advances. In each case the vast majority of coefficients are considerably greater than unity. Even allowing for the tendency for the retail sales index to have understated the rise in consumption, it seems that when either total consumption or total credit is growing, imports of consumer goods are likely to be growing even more rapidly.

Turning to the utility of the analysis for forecasting purposes, the tests applied in §4.7 illustrate the dangers of relying too absolutely on econometric equations in making predictions. Although the fit and significance of all the selected equations are quite good, the results they give for two individual quarters are not very accurate.

However, this by no means implies that the equations, judiciously used, are of no benefit for predictive purposes. In the first place the two quarters tested are clearly atypical, and for more normal quarters rather better results could be expected. More important, one is seldom concerned with attempting to predict a single quarter. Applied to a period of three or more quarters, one can reasonably expect many of the errors to cancel out, as the analysis shows that the distribution of the residuals is fairly random. Thus a more accurate prediction for a year (the sum of four successive quarters) than for an individual quarter can be hoped for.

Further testing, as fresh data become available, is obviously desirable before too much reliance can be placed on any of the equations, but even at present there seems no reason why they cannot be applied in a tentative manner in making projections. Of course in actual forecasting, as distinct from testing a model by " predicting " the past, one does not know the actual value of the independent variables. The utility of models such as these lies in keeping forecasts consistent, and in formalising the probable effects of alternative assumptions concerning movements in a few key variables.

SECTION 5: THE FEDERATION OF IRISH INDUSTRIES AND THE ECONOMIC AND SOCIAL RESEARCH INSTITUTE

QUARTERLY INDUSTRIAL SURVEY

JUNE 1969

The report contains the results of the June Industrial Survey conducted jointly by the Federation of Irish Industries and the Economic and Social Research Institute. The survey covered the Second Quarter of 1969 compared with the Second Quarter of 1968 with forecasts for trends in the Third Quarter of 1969 compared with the corresponding period of 1968. Over 80% of respondents replied to the survey and the results can be taken to represent the current views of a good cross-section of Irish Industry. The results of the survey are available for Dublin only and for areas outside Dublin and while the overall results are only included on this basis in this report respondents wishing to have the two sets of results for their industry may do so on request to the FII.

FII/ESRI QUARTERLY INDUSTRIAL SURVEY, JUNE 1969

OVERALL RESULTS

The results of the June Quarterly Industrial Survey of the Federation of Irish Industries and the Economic and Social Research Institute indicate that manufacturing industry is enjoying a period of rapid expansion and that the suggestion in the March

Quarterly Industrial Survey that the decline in the rate of production and sales was primarily attributable to the maintenance dispute was in effect true. The survey, comparing the second Quarter of 1969 with the corresponding Quarter of 1968 suggests that large-scale increases in production and home sales took place in the quarter, that exports were at a similar level to those in the same period last year and that an increase in employment has taken place in the quarter.

Further expansion in production, home sales and exports coupled with a rise in the numbers employed are forecast for the 3rd Quarter of 1969 compared with 3rd Quarter of 1968 by the majority of respondents to the survey.

A change in the coding of returns has enabled the Institute and the Federation to split the results between Dublin and the rest of the country and it is interesting to note that when the overall results for Dublin are compared with those for the rest of the country no significant differences are apparent.

As was suggested in the March Quarterly Industrial Survey the distinct decline recorded in that quarter in production and sales appears to have been directly attributable to the maintenance dispute. The results of the June Quarter of 1969 compared with the corresponding period of 1968 revert to a pattern similar to those seen in the September and December 1968 Surveys. They indicate that some very substantial increases in production and home sales have taken place. Official statistics recently issued on retail sales verify that home demand is exceedingly buoyant at the present moment and this tends to suggest that the indication in the results of the June survey are probably quite correct.

The survey, however, indicates that the rate of industrial exports has declined from that of previous quarters and this may be significant in light of the inflationary trends emerging at the present moment.

The overall position regarding employment is encouraging. Some industries reported quite remarkable increases during the quarter. These increases are the highest in the history of the survey. Stocks of finished products and of raw materials were generally considered adequate by respondents at the end of the quarter.

In spite of the increased investment reported in the last two surveys the capacity restraints, attention to which have already been drawn, in previous surveys, still appear to be of a serious nature. 48 per cent of respondents reported that they were unable to produce more with their existing capacity.

In comparison with the 3rd Quarter of 1968 expectations for the coming quarter are that production will continue to increase, that the buoyant trend in home sales will be maintained and that the rate of exports will increase slightly. A further rise in employment is also considered likely in the quarter.

SECTOR RESULTS

All industry groups registered higher production in the 2nd Quarter of 1969 compared with the corresponding period of 1968. The most noticeable increases were in the Textiles, Clothing & Footwear, Paper & Printing, Glass, Clay & Cement, Metals

& Engineering and "Other Manufacturing" industry groups. Higher home sales were reported by all industry groups in the quarter and the increases by the Drink & Tobacco, Paper & Printing, Chemicals, Metals & Engineering and "Other Manufacturing" industry groups were the most significant. With the exception of the Food, and the Wood & Furniture industry groups both of which reported similar exports in the quarter compared with the same period of last year and the Drink & Tobacco industry which reported lower exports in the quarter, all other industry groups reported increased exports. The most significant increases occurred in the Textiles, Clothing & Footwear, Paper & Printing, Metals & Engineering and "Other Manufacturing" industry groups. The Textiles, Clothing & Footwear, Metals & Engineering and "Other Manufacturing" all reported significant increases in employment in the 2nd Quarter of 1969 compared with the 2nd Quarter of 1968. No change in employment was reported by the Food, Drink & Tobacco, Wood & Furniture, Paper & Printing, Chemicals, and the Glass, Clay & Cement industry groups. It is interesting to note that no industry groups reported decreased employment in the quarter.

At the end of the 2nd Quarter of 1969 stocks of finished products were considered to be adequate by the Food, Drink & Tobacco, Clothing & Footwear, Wood & Furniture, and the Glass, Clay & Cement industry groups while the Textiles, Paper & Printing, Chemicals and "Other Manufacturing" industry groups considered finished stocks to be excessive. The Metals & Engineering industry considered that stocks of finished products at the end of the quarter were insufficient for their needs. At the end of the 2nd Quarter of 1969 the Drink & Tobacco, Textiles, Clothing & Footwear, Wood & Furniture and Chemicals industry groups considered stocks of raw materials to be excessive while the Food, Paper & Printing, Glass, Clay & Cement, Metals & Engineering and "Other Manufacturing" industry groups considered stocks of materials to be adequate. No industry group reported that stocks of raw materials were insufficient for their needs at the end of June 1969.

While the majority of respondents in the Food, Drink & Tobacco, Wood & Furniture, Paper & Printing, Chemicals and "Other Manufacturing" industry groups felt their existing capacity was sufficient to enable them to produce more if orders were forthcoming in the quarter the majority of respondents in the Textiles, Clothing & Footwear, Chemicals and Metals & Engineering industry groups reported they were working to full capacity. Firms experiencing difficulty in producing more listed insufficient capacity as the main causes of this. In Dublin labour shortages, particularly of skilled female labour, and in the country lack of raw materials are other important contraints. The general reports that there is a scarcity of available female labour for Irish manufacturing industry are now manifesting themselves in the survey returns.

With the exception of the Drink & Tobacco industry all industry groups expect production to be higher in the 3rd Quarter of 1969 compared with the corresponding period of 1968. The most significant increases are anticipated in the Textiles and Metals & Engineering industry groups. Only the "Other Manufacturing" industry expects home sales to be lower in the 3rd Quarter of 1969 compared with the 3rd Quarter of 1968. All other industry groups anticipate increased home sales in the quarter. The Chemicals and Metals & Engineering industry groups expect the highest increases.

Increased exports are anticipated by the Textiles, Wood & Furniture, Paper & Printing, Chemicals, Glass, Clay & Cement, Metals & Engineering and "Other Manufacturing" industry groups in the 3rd Quarter of 1969 compared with the

corresponding period of 1968 while the Food and Clothing & Footwear industry groups expect no change in their export performances. The Drink & Tobacco industry does, however, anticipate a significant drop in its exports for the 3rd Quarter.

Compared with the 3rd Quarter of 1968 increased employment for the 3rd Quarter of 1969 is expected by the Textiles, Clothing & Footwear, Paper & Printing, Glass, Clay & Cement, Metals & Engineering and " Other Manufacturing " industry groups. The Food, Drink & Tobacco, Wood & Furniture and the Chemicals industry groups expect no change in employment in the quarter. It is significant that no industry group anticipates lower employment in the 3rd Quarter of 1969 than in the same period of last year.

Due to the limited number of firms involved precise conclusions about individual industries investment are not feasible and the overall position only is looked at. Firms with their financial years ending the 2nd Quarter of 1968 reported that their investment was higher than in the previous year. For the coming year they expect a similar rise to that of last year. With the obvious buoyant state of domestic demand at present this expectation is to be welcomed.

FII/ESRI QUARTERLY INDUSTRIAL SURVEY

ALL MANUFACTURING

TREND OF REPLIES

The table set out below is designed to show the trend of replies in this and the four previous surveys. In questions 1, 2, 3, 4, 9, 10, 11, 12 and 13 the difference between the positive and negative replies is taken. Where a positive sign appears before the figure in relation to these questions it indicates that the number of respondents who experienced a rise or expected one in the future quarter was that percentage higher than those who did not nor expected to experience a rise; the opposite applying where a negative sign appears.

For questions 5 and 6 the difference between the percentage of respondents reporting finished goods and raw materials was excessive and insufficient is taken. Here a positive sign before the answer arrived at indicated the number of respondents who considered that raw materials and finished goods were insufficient was that percentage higher than those who did not and a negative sign indicates that they were excessive.

To arrive at the figures given for question 7 the difference between the percentage of respondents stating that more orders could have been met in the various quarters and those replying in the negative is taken to show the trend of excessive capacity during the surveys.

TABLE 5.1

Question	July 1968	October 1968	January 1969	April 1969	July 1969
1. Total Production was	+68	+76	+75	— 4	+64
2. Homes Sales were	+67	+76	+80	—	+72
3. Exports were	+22	+26	+53	—19	+15
4. Labour Force was	+ 8	+16	+15	— 1	+29
5. Finished Stocks were ...	+15	+21	+14	+ 8	+ 1
6. Materials Stocks were	+ 5	— 1	+ 4	— 3	+20
7. Constraints	+32	—	— 2	— 2	+ 4
9. Home Sales will be	+68	+81	+51	+53	+52
10. Exports will be	+27	+37	+49	+33	+21
11. Labour Force will be	+16	+22	+10	+14	+32
12. Investment was	+ 5	+25	+10	+26	+45
13. Investment will be	+18	+51	+52	+58	+47

N.B.—When a full year's replies to question 8 are available they will be included in the above table.

TABLE 5.2: INDUSTRY GROUP — ALL MANUFACTURING

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	75	16	9	Higher
2. Value of Home Sales was	80	12	8	Higher
3. Value of Exports was	39	37	24	Same
4. Wage Paid Labour Force was	43	43	14	Higher
At end of June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	31	39	30	Adequate
6. Stocks of Materials are considered to be	33	54	13	Adequate
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 52 *No* 48			Yes
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 32 Insufficient Skilled Male Labour 11 Insufficient Skilled Female Labour 13 Insufficient Unskilled Male Labour 9 Insufficient Unskilled Female Labour 7 Insufficient Raw Mats. Supply 20 Insufficient Cash and/or Credit 5 Any other Reason 3			Insufficient Capacity
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	67	27	6	Higher
9. Value of Home Sales will be	61	30	9	Higher
10. Value of Exports will be	46	29	25	Higher
11. Wage Paid Labour Force will be	42	48	10	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	64	17	19	Higher
13. Capital investment in coming year compared with last year will be	64	19	17	Higher

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	75	18	7	Higher
2. Value of Home Sales was	84	10	6	Higher
3. Value of Exports was	38	42	20	Same
4. Wage Paid Labour Force was	38	41	21	Same
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	25	44	31	Adequate
6. Stocks of Materials are considered to be	35	56	9	Excessive
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 65 *No* 35			Yes
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 33 Insufficient Skilled Male Labour 12 Insufficient Skilled Female Labour 17 Insufficient Unskilled Male Labour 16 Insufficient Unskilled Female Labour 8 Insufficient Raw Mats. Supply 11 Insufficient Cash and/or Credit 2 Any other reason 1			Insufficient Capacity
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	70	23	7	Higher
9. Value of Home Sales will be	67	23	10	Higher
10. Value of Exports will be	47	30	23	Higher
11. Wage Paid Labour Force will be	40	51	9	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	41	29	30	Same
13. Capital investment in coming year compared with last year will be	52	29	19	Higher

TABLE 5.4: INDUSTRY GROUP—ALL MANUFACTURING —AREAS OUTSIDE DUBLIN

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 *compared with 2nd quarter 1968*	Higher	Same	Lower	
1. Value of Total Production was	76	14	10	Higher
2. Value of Home Sales was	74	16	10	Higher
3. Value of Exports was	41	31	28	Same
4. Wage Paid Labour Force was	49	46	5	Higher
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	38	33	29	Adequate
6. Stocks of Materials are considered to be	30	53	17	Adequate
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 35 *No* 65			No
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 31 Insufficient Skilled Male Labour 9 Insufficient Skilled Female Labour 7 Insufficient Unskilled Male Labour 2 Insufficient Unskilled Female Labour 6 Insufficient Raw Mats. Supply 31 Insufficient Cash and/or Credit 8 Any other reason 6			Insufficient Capacity and Raw Material Supply
In 3rd quarter 1969 compared *with 3rd quarter 1968*	Higher	Same	Lower	
8. Value of Production will be	64	31	5	Higher
9. Value of Home Sales will be	54	39	7	Higher
10. Value of Exports will be	45	28	27	Same
11. Wage Paid Labour Force will be	44	45	11	Higher
For firms whose financial year *ended during 2nd quarter 1969*	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	93	3	4	Higher
13. Capital investment in coming year compared with last year will be	82	3	15	Higher

	WEIGHTED REPLIES (%)			APPARENT TREND

In 2nd quarter 1969 compared with 2nd quarter 1968

	Higher	Same	Lower	
1. Value of Total Production was	52	26	22	Higher
2. Value of Home Sales was	52	27	21	Higher
3. Value of Exports was	17	53	30	Same
4. Wage Paid Labour Force was	20	55	25	Same

At end June 1969

	Excessive	Adequate	Insufficient	
5. Stock of Finished Products are considered to be	14	61	25	Adequate
6. Stocks of Materials are considered to be	23	69	8	Adequate

During 2nd quarter 1969

7. Could more be produced with present resources		Yes 66 No 34		Yes

7a. Where firms replied No, the causes responsible were				
Insufficient Capacity			16	Insufficient Raw Material Supply
Insufficient Skilled Male Labour			—	
Insufficient Skilled Female Labour			9	
Insufficient Unskilled Male Labour			8	
Insufficient Unskilled Female Labour			14	
Insufficient Raw Mats. Supply			52	
Insufficient Cash and/or Credit			—	
Any other reason			1	

In 3rd quarter 1969 compared with 3rd quarter 1968

	Higher	Same	Lower	
8. Value of Production will be	67	27	6	Higher
9. Value of Home Sales will be	49	37	14	Higher
10. Value of Exports will be	32	39	29	Same
11. Wage Paid Labour Force will be	21	61	18	Same

For firms whose financial year ended during 2nd quarter 1969

	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	11	58	31	Same
13. Capital investment in coming year compared with last year will be	77	—	23	Higher

TABLE 5.6: INDUSTRY GROUP — DRINK AND TOBACCO

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	38	62	—	Higher
2. Value of Home Sales was	100	—	—	Higher
3. Value of Exports was	32	5	63	Lower
4. Wage Paid Labour Force was	10	79	11	Same
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	27	60	13	Adequate
6. Stocks of Materials are considered to be	29	71	—	Excessive
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 100 *No*			Yes
7a. Where firms replied No, the causes responsible were	Insufficient Capacity Insufficient Skilled Male Labour Insufficient Skilled Female Labour Insufficient Unskilled Male Labour Insufficient Unskilled Female Labour Insufficient Raw Mats. Supply Insufficient Cash and/or Credit Any other reason			—
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	15	85	—	Same
9. Value of Home Sales will be	78	22	—	Higher
10. Value of Exports will be	7	1	92	Lower
11. Wage Paid Labour Force will be	—	100	—	Same
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	100	—	—	Higher
13. Capital investment in coming year compared with last year will be	—	100	—	Same

TABLE 5.7: INDUSTRY GROUP — TEXTILES

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	89	11	—	Higher
2. Value of Home Sales was	78	20	2	Higher
3. Value of Exports was	79	20	1	Higher
4. Wage Paid Labour Force was	79	14	7	Higher
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	55	24	21	Excessive
6. Stocks of Materials are considered to be	60	40	—	Excessive
During 2nd quarter 1969				
7. Could more be produced with present resources	Yes 17 No 83			No
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 35 Insufficient Skilled Male Labour 9 Insufficient Skilled Female Labour 24 Insufficient Unskilled Male Labour 5 Insufficient Unskilled Female Labour 11 Insufficient Raw Mats. Supply 2 Insufficient Cash and/or Credit — Any other reason 14			Insufficient Capacity
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	81	12	7	Higher
9. Value of Home Sales will be	59	41	—	Higher
10. Value of Exports will be	58	35	7	Higher
11. Wage Paid Labour Force will be	70	28	2	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	100	—	—	Higher
13. Capital investment in coming year compared with last year will be	100	—	—	Higher

TABLE 5.8: INDUSTRY GROUP — CLOTHING AND FOOTWEAR

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	93	2	3	Higher
2. Value of Home Sales was	74	5	21	Higher
3. Value of Exports was	86	6	8	Higher
4. Wage Paid Labour Force was	63	32	5	Higher
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	34	22	44	Adequate
6. Stocks of Materials are considered to be	39	47	14	Excessive
During 2nd quarter 1969				
7. Could more be produced with present resources	Yes 35 No 65			No
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 28 Insufficient Skilled Male Labour 19 Insufficient Skilled Female Labour 36 Insufficient Unskilled Male Labour 1 Insufficient Unskilled Female Labour 7 Insufficient Raw Mats. Supply 1 Insufficient Cash and/or Credit 1 Any other reason 7			Insufficient Skilled Female Labour
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	76	12	12	Higher
9. Value of Home Sales will be	56	15	29	Higher
10. Value of Exports will be	50	16	34	Same
11. Wage Paid Labour Force will be	61	27	12	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	69	13	18	Higher
13. Capital investment in coming year compared with last year will be	51	6	43	Same

TABLE 5.9: INDUSTRY GROUP — WOOD AND FURNITURE

	WEIGHTED REPLIES (%)			APPARENT TREND

In 2nd quarter 1969 compared with 2nd quarter 1968

	Higher	Same	Lower	
1. Value of Total Production was	72	9	19	Higher
2. Value of Home Sales was	72	9	19	Higher
3. Value of Exports was	36	48	16	Same
4. Wage Paid Labour Force was	9	72	19	Same

At end June 1969

	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	22	59	19	Adequate
6. Stocks of Materials are considered to be	65	22	13	Excessive

During 2nd quarter 1969

7. Could more be produced with present resources	Yes 53 No 47			Yes

7a. Where firms replied No, the causes responsible were		Insufficient
Insufficient Capacity	50	Capacity
Insufficient Skilled Male Labour	33	
Insufficient Skilled Female Labour	—	
Insufficient Unskilled Male Labour	—	
Insufficient Unskilled Female Labour	—	
Insufficient Raw Mats. Supply	—	
Insufficient Cash and/or Credit	17	
Any other reason	—	

In 3rd quarter 1969 compared with 3rd quarter 1968

	Higher	Same	Lower	
8. Value of Production will be	63	34	3	Higher
9. Value of Home Sales will be	47	50	3	Higher
10. Value of Exports will be	36	50	14	Higher
11. Wage Paid Labour Force will be	31	53	16	Same

For firms whose financial year ended during 2nd quarter 1969

	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	50	50	—	Higher
13. Capital investment in coming year compared with last year will be	100	—	—	Higher

TABLE 5.10: INDUSTRY GROUP — PAPER AND PRINTING

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	95	—	5	Higher
2. Value of Home Sales was	93	7	—	Higher
3. Value of Exports was	88	—	12	Higher
4. Wage Paid Labour Force was	17	69	14	Same
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	52	35	13	Excessive
6. Stocks of Materials are considered to be	14	61	25	Adequate
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 56 *No* 44			Yes
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 33 Insufficient Skilled Male Labour 33 Insufficient Skilled Female Labour – Insufficient Unskilled Male Labour – Insufficient Unskilled Female Labour – Insufficient Raw Mats. Supply 34 Insufficient Cash and/or Credit – Any other reason –			Insufficient Raw Material Supply
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	67	33	—	Higher
9. Value of Home Sales will be	62	38	—	Higher
10. Value of Exports will be	93	7	—	Higher
11. Wage Paid Labour Force will be	31	61	8	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was *				
13. Capital investment in coming year compared with last year will be *				

*The number of replies received to these questions was not sufficient to permit an estimate to be made.

TABLE 5.11: INDUSTRY GROUP — CHEMICALS

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	66	—	34	Higher
2. Value of Home Sales was	87	13	—	Higher
3. Value of Exports was	44	39	17	Higher
4. Wage Paid Labour Force was	46	19	35	Same
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	61	26	13	Excessive
6. Stocks of Materials are considered to be	80	20	—	Excessive
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 66 *No* 34			Yes
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 52 Insufficient Skilled Male Labour 26 Insufficient Skilled Female Labour — Insufficient Unskilled Male Labour 11 Insufficient Unskilled Female Labour 11 Insufficient Raw Mats. Supply — Insufficient Cash and/or Credit — Any other reason —			Insufficient Capacity
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	57	8	35	Higher
9. Value of Home Sales will be	94	—	6	Higher
10. Value of Exports will be	33	67	—	Higher
11. Wage Paid Labour Force will be	43	23	34	Same
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	100	—	—	Higher
13. Capital investment in coming year compared with last year will be	—	—	100	Lower

TABLE 5.12: INDUSTRY GROUP — GLASS CLAY & CEMENT

	WEIGHTED REPLIES (%)			APPARENT TREND
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	76	24	—	Higher
2. Value of Home Sales was	76	24	—	Higher
3. Value of Exports was	50	25	25	Higher
4. Wage Paid Labour Force was	40	34	26	Same
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	52	14	34	Adequate
6. Stocks of Materials are considered to be	—	100	—	Adequate
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* — *No* 100			No
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 100 Insufficient Skilled Male Labour — Insufficient Skilled Female Labour — Insufficient Unskilled Male Labour — Insufficient Unskilled Female Labour — Insufficient Raw Mats. Supply — Insufficient Cash and/or Credit — Any other reason —			Insufficient Capacity
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	45	45	10	Higher
9. Value of Home Sales will be	66	34	—	Higher
10. Value of Exports will be	80	—	20	Higher
11. Wage Paid Labour Force will be	39	45	16	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	100	—	—	Higher
13. Capital investment in coming year compared with last year will be	100	—	—	Higher

Table 5.13: INDUSTRY GROUP — METALS AND ENGINEERING

	Weighted Replies (%)			Apparent Trend
In 2nd quarter 1969 compared with 2nd quarter 1968	Higher	Same	Lower	
1. Value of Total Production was	82	16	2	Higher
2. Value of Home Sales was	93	7	—	Higher
3. Value of Exports was	72	5	23	Higher
4. Wage Paid Labour Force was	72	20	8	Higher
At end June 1969	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	20	33	47	Insufficient
6. Stocks of Materials are considered to be	37	37	26	Adequate
During 2nd quarter 1969				
7. Could more be produced with present resources	*Yes* 30 *No* 70			No
7a. Where firms replied No, the causes responsible were	Insufficient Capacity 34 Insufficient Skilled Male Labour 4 Insufficient Skilled Female Labour 8 Insufficient Unskilled Male Labour — Insufficient Unskilled Female Labour 24 Insufficient Raw Mats. Supply 18 Insufficient Cash and/or Credit 12 Any other reason —			Insufficient Capacity
In 3rd quarter 1969 compared with 3rd quarter 1968	Higher	Same	Lower	
8. Value of Production will be	86	8	6	Higher
9. Value of Home Sales will be	86	—	14	Higher
10. Value of Exports will be	90	5	5	Higher
11. Wage Paid Labour Force will be	65	35	—	Higher
For firms whose financial year ended during 2nd quarter 1969	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was	72	—	28	Higher
13. Capital investment in coming year compared with last year will be	66	34	—	Higher

	WEIGHTED REPLIES (%)			APPARENT TREND

In 2nd quarter 1969 compared with 2nd quarter 1968

	Higher	Same	Lower	
1. Value of Total Production was	100	—	—	Higher
2. Value of Home Sales was	100	—	—	Higher
3. Value of Exports was	100	—	—	Higher
4. Wage Paid Labour Force was	64	36	—	Higher

At end June 1969

	Excessive	Adequate	Insufficient	
5. Stocks of Finished Products are considered to be	56	22	22	Excessive
6. Stocks of Materials are considered to be	—	100	—	Adequate

During 2nd quarter 1969

7. Could more be produced with present resources	*Yes* 100 *No* —			Yes

7a. Where firms replied No, the causes responsible were		
Insufficient Capacity	—	
Insufficient Skilled Male Labour	—	
Insufficient Skilled Female Labour	—	
Insufficient Unskilled Male Labour	—	
Insufficient Unskilled Female Labour	—	
Insufficient Raw Mats. Supply	—	
Insufficient Cash and/or Credit	—	
Any other reason	—	

In 3rd quarter 1969 compared with 3rd quarter 1968

	Higher	Same	Lower	
8. Value of Production will be	64	36	—	Higher
9. Value of Home Sales will be	14	86	—	Same
10. Value of Exports will be	100	—	—	Higher
11. Wage Paid Labour Force will be	50	36	14	Higher

For firms whose financial year ended during 2nd quarter 1969

	Higher	Same	Lower	
12. Capital investment in past year compared with previous year was *				
13. Capital investment in coming year compared with last year will be *				

* The number of replies received to these questions is not sufficient to permit an estimate to be made.

SECTION 6: SEASONALLY CORRECTED QUARTERLY SERIES

Introductory Notes

Since 1965 The Economic and Social Research Institute has undertaken the seasonal correction of certain important economic series, and made the results available to those on a restricted circulation list. Henceforth it is intended to publish these seasonally corrected series as an integral part of the *Quarterly Economic Commentary*, and they will be found in the following three tables.

Table 6.1 sets out the actual data to the latest date available. The selected series have been taken from the Central Statistics Office's "Economic Series" and "Quarterly Industrial Inquiry", published in the *Irish Statistical Bulletin*, and from the Central Bank of Ireland's *Quarterly Bulletin*, with the latest figures in each case being available in the form of stencilled supplements. Two of the series are derived from other series in the table, Series 3 from Series 2 and 7 and Series 20 from Series 19 and 12.

Table 6.2 shows the seasonally corrected figures for the 25 out of the 35 series in Table 6.1 which analysis of variance has shown to be subject to significant seasonal fluctuations. The method used for their derivation is set out in "Seasonality in Irish Economic Statistics" by C. E. V. Leser (E.R.I. Paper No. 26). The correction factors for the current year are derived from the data for the preceding five year period. Thus the factors by which the 1969 original data must be divided (the result being multiplied by either 400 or 100) to arrive at the seasonally corrected series are based on the period 1964-1968, and are as follows:

Series No.	Quarter			
	I	II	III	IV
1	97.0	101.4	97.7	103.9
2	95.7	102.9	99.4	101.9
5	117.9	88.2	80.5	113.4
6	111.5	92.5	98.4	97.6
7	98.7	99.8	100.8	100.7
8	125.0	94.3	78.6	102.1
9	116.9	100.1	85.9	97.1
13	102.2	101.4	97.2	99.2
19	98.1	100.6	100.5	100.8
21	91.4	99.4	102.8	106.4
22	115.2	121.1	97.6	66.1
23	131.5	90.2	92.3	86.0
24	111.6	95.7	90.0	102.7
25	102.7	103.9	94.7	98.7
26	96.3	94.3	106.7	102.7
30	99.1	98.2	100.4	102.3
31	100.6	102.0	95.3	102.1
32	99.4	99.6	100.4	100.6
34	103.0	98.3	98.5	100.2
35	101.3	98.2	98.7	101.8

A further 5 series, Nos. 3, 20, 27, 28 and 29, are indirectly corrected through their relationship to other seasonally corrected or seasonality-free series. No regular seasonal pattern is observed in the remaining series, Nos. 4, 10, 11, 12, 14, 15, 16, 17, 18 and 33, and consequently no correction is necessary.

The figures in Table 6.2 make it possible to interpret and compare changes between consecutive quarters, where otherwise comparisons would have to be confined to the corresponding quarter of the previous year or average of years. Whilst it is possible that in isolated cases, where the seasonal pattern is changing, the correction can in itself impart some instability to the trend, in general the corrected series can be used with a fair degree of confidence in drawing inferences as to short-term trends.

Table 6.3 shows all the corrected series, and two of the more important seasonality-free series, converted to the form of index numbers with 1961=100, and covering a longer period than the other two tables. The purpose is to facilitate comparison between trends in the different series. To the same end much of the information given in Table 6.3 is shown in chart form in the following pages (Section 7). As a common scale is kept throughout the section, it can readily be seen how far the trends of different series have diverged from each other over the past few years.

A few points regarding specific series need to be borne in mind to avoid possibly misleading conclusions being drawn. Due to changes in definition in recent years, both of the series (Nos. 8 and 9) dealing with unemployment need to be treated with great caution. The apparent trend reflects these changes, and should not be interpreted as indicating genuine movements in the level of unemployment.

Due to the bank dispute of 1966, only average figures for the period from April to October of that year are available for Series 23, 24 and 31. These averages have been distributed between the quarters of 1966 according to the average monthly pattern observed in the period 1962-1965 and in 1967. The resulting figures are shown in the tables and used in calculating the seasonal correction factors for 1969. Naturally the figures for the period affected by the dispute must therefore be treated with some reserve, but it is felt that the seasonal corrections based in part on these figures are reliable.

Also due to the same dispute, no figures at all are available during the period for Series 30 and 34. Figures for the period were calculated by intrapolation according to the normal seasonal pattern from the known values on either side of the stoppage. Whilst it is felt justifiable to use these figures for subsequent seasonal correction, it is felt that they are not sufficiently reliable to show separately in the tables.

The UK seamen's strike of 1966 distorted the normal pattern of trade. While the actual figures are shown in the tables, their inclusion in calculation of subsequent seasonal correction factors could be misleading. Accordingly an alternative set of figures was calculated for Series 25 and 26 by distributing the aggregate figures for the last three quarters of 1966 according to the normal quarterly pattern, with the results for imports being further modified to take account of divergences from normal in the seasonal pattern of industrial production and retail sales in the course of 1966. These alternative figures have been used in calculating the seasonal correction factors for 1969, and are also shown as points joined by dotted lines on the appropriate charts.

Series 35 is the Central Bank's new series for external monetary reserves. This series has been carried back to 1963 by the ESRI and only the figures relating to 1967 onwards are directly based on the official Central Bank estimates. However it is felt that any discrepancies are likely to be small, as it is only since 1968 that the new series has diverged significantly from the older series of External Assets. It is intended to publish both Series 34 and 35 for a short period, and then to drop Series 34.

Number	Series	Unit	1967		
			I	II	III
	PRODUCTION				
1	Manuf. Industry: Production Volume	1953=100	179.8	193.3	185.1
2	Tr. Goods Industries: Production Volume	1953=100	183.4	204.7	194.0
3	Tr. Goods Industries: Prod. per Worker	1953=100	150.4	165.6	155.2
4	New Houses Built	No.	3,015	2,817	2,640
5	Electricity Output	Mill. Kw.h.	1,164	933	847
	MANPOWER				
6	Sales of Insurance Stamps	'000	7,511	13,323	
7	No. in Tr. Goods Industries	'000	183.7	186.2	188.2
8	Benefit Claims Current	'000	40.2	29.1	24.8
9	Live Register as Prop. of Insured	%	7.7	6.5	6.0
10	Net Passengers Outward — Sea and Air (Moving Annual Total)	'000	13.5	10.2	20.5
	PRICES				
11	Wholesale	1953=100	136.3	138.4	137.0
12	Consumer	1953=100	150.6	153.2	153.3
13	Agricultural	1953=100	118.8	118.9	114.9
14	Import (Unit Value)	1953=100	113.4	113.2	112.6
15	Export (Unit Value)	1953=100	114.3	114.2	112.6
16	Terms of Trade	1953=100	100.8	100.9	99.9
17	Stocks and Shares—Ordinary	1953=100	272.2	284.6	300.4
	WAGES, EARNINGS				
18	Agricultural Minimum Wages	shs.	180.5	180.5	180.5
19	Tr. Goods Inds.: av. Weekly Money Earnings	1953=100	217.6	222.1	224.0
	av. Weekly Real Earnings	1953=100	144.5	145.0	146.1
	CONSUMPTION				
21	Retail Sales	1961=100	127	138	144
22	New Cars Registered	No.	10,369	12,476	9,281
	GOVERNMENT				
23	Revenue Receipts (weekly av.)	£'000	7,149	5,349	5,407
24	Exchequer Expenditure (weekly av.)	£'000	6,394	5,714	6,306
	EXTERNAL TRADE				
25	Import Value	£Mill.	100.31	98.47	92.91
26	Export Value	£Mill.	64.37	67.27	76.38
27	Import Excess Value	£Mill.	35.94	31.20	16.53
28	Import Volume	1953=100	190.8	187.6	177.9
29	Export Volume	1953=100	196.7	205.6	236.9
	BANKING, FINANCE				
30	Money Supply (Unadjusted)	£Mill.	339.4	339.5	357.5
31	Bank debits—non govt. (daily av.)	£Mill.	20.21	22.36	20.22
32	Bills, Loans, Advances (within State)	£Mill.	339.5	335.1	346.4
33	Investments (within State)	£Mill.	49.6	49.0	48.3
34	External Assets — Bank system and Dep. Funds	£Mill.	254.4	262.0	275.6
35	External Monetary Reserves	£Mill.	254.1	261.7	275.7

	1968				1969			
IV	I	II	III	IV	I	II	III	IV
202.1	193.2	212.3	207.5	226.9	198.1			
205.2	197.2	225.6	220.7	233.4	204.6			
163.8	160.5	178.8	172.8	180.7	157.4			
3,063	2,897	2,777	2,891	3,182	4,053	2,851		
1,216	1,265	1,018	947	1,312	1,488	1,124		
6,567	7,598	6,417	6,653	6,670	7,869			
188.7	185.0	190	192.3	194.5	195.8			
32.5	40.5	34.6	30.7	35.6	41.9	32.0		
6.6	7.7	6.8	6.0	6.4	7.5	6.2		
49.1	38.2	22.96	25.53	4.51	16.75	18.00		
139.0	143.6	145.9	145.9	148.2	153.2	156.9		
154.3	157.5	160.0	160.3	162.7	168.1	171.0	173.8	
124.1	132.2	131.1	128.7	132.5	136.2	137.4		
113.0	120.5	122.5	125.0	123.2	128.2	128.4		
114.4	121.0	122.6	122.5	123.2	124.6	127.7		
101.3	100.5	100.1	98.0	100.1	97.2	99.4		
320.9	357.6	410.6	449.3	462.6	473.6	463.8		
180.5	180.5	197.75	195.75	195.75	195.75			
231.6	230.2	240.9	246.5	255.1	260.4			
150.1	146.2	150.6	153.8	156.8	154.9			
153	135	151	158	170	147	170		
7,346	13,240	14,983	11,938	10,952	13,172	16,420		
5,025	7,544	5,691	6,273	6,137	8,349	7,221		
6,670	7,247	6,716	7,463	7,872	8,579	7,619		
98.92	115.30	124.15	116.48	132.43	133.69	158.9		
75.43	74.53	80.12	87.70	89.23	80.25	91.7		
23.49	40.77	44.03	28.78	43.20	53.44	67.2		
188.8	206.5	218.7	194.4	233.7	225.0	268.3		
230.5	214.9	228.2	249.6	252.8	224.5	251.3		
372.9	373.1	370.3	390.5	405.7	402.1	402.3		
22.19	21.90	22.36	23.69	27.00	26.61	31.21		
363.6	379.0	394.0	405.2	414.0	437.6	459.0		
47.5	49.2	49.2	62.5	89.1	87.7	86.9		
291.2	284.3	250.1	239.9	249.7	240.4	224.2		
292.0	292.2	280.1	281.0	292.3	284.4	269.1		

Number	Series	Unit	1967		
			I	II	III
5	Electricity output	Mill. Kw.h.	3,878	4,282	4,223
6	Sales of insurance stamps	'000	26,080	28,242	28,242
22	New cars registered	No.	34,592	41,866	37,087
25	Value of imports	£Mill.	397.7	378.0	398.3
26	Value of exports	£Mill.	265.7	289.0	285.5
27	Import excess	£Mill.	132.0	89.0	112.8
7	Employment tr. goods inds.	'000	185.2	186.8	186.9
8	Benefit claims current	'000	31.1	31.1	32.8
9	Live register prop. of insured	%	6.5	6.4	7.1
23	Weekly revenue receipts	£'000	5,229	6,141	5,948
24	Weekly exchequer expenditure	£'000	5,599	5,879	6,922
30	Money supply	£Mill.	341.8	343.3	360.7
31	Daily bank debits—non-govt.	£Mill.	19.9	22.1	21.1
34	External assets	£Mill.	251.1	266.0	280.7
35	External monetary reserves	£Mill.	250.6	265.4	278.7
1	Prod. Volume—manuf. inds.	1953=100	184.9	191.8	187.2
2	Prod. Volume—tr. goods inds.	,,	191.8	199.5	196.4
3	Production per worker	,,	156.0	160.8	158.3
13	Agricultural prices	,,	117.3	117.4	117.0
19	Money Earnings—tr. goods inds.	,,	221.1	220.3	222.7
20	Real Earnings—tr. goods inds.	,,	146.8	143.8	145.3
28	Volume of imports	,,	189.1	180.0	190.7
29	Volume of exports	,,	203.0	220.8	221.4
21	Retail Sales	1961=100	139.3	138.1	140.9

SERIES CORRECTED FOR SEASONALITY

IV	1968				1969			
	I	II	III	IV	I	II	III	IV
Equivalent Annual Aggregates								
4,325	4,257	4,643	4,724	4,635	5,050	5,095		
27,334	26,848	28,236	26,990	27,420	28,229			
42,709	47,370	49,777	47,608	64,900	45,736	54,236		
389.5	454.4	477.3	496.8	529.0	520.7	611.7		
292.9	307.3	338.7	328.7	350.9	333.3	389.0		
96.6	147.1	138.6	168.1	178.1	187.4	222.7		
Average Value During Quarter								
187.9	186.9	190.4	191.0	193.5	198.4			
32.0	31.8	37.3	40.1	34.4	33.5	33.9		
6.9	6.5	6.8	7.1	6.6	6.4	6.2		
5,905	5,625	6,373	6,833	7,237	6,349	8,006		
6,841	6,494	7,025	8,076	7,841	7,687	7,961		
363.1	376.4	376.3	390.8	395.4	405.8	409.7		
21.9	21.6	21.8	25.1	26.6	26.5	30.6		
285.5	279.3	253.4	243.0	247.7	233.4	228.1		
288.8	288.2	284.0	284.1	289.1	280.8	274.0		
Index Numbers 1953 = 100								
196.6	198.8	210.6	212.6	217.3	204.2			
199.2	205.8	220.1	223.2	227.0	213.8			
159.7	165.8	176.1	176.0	176.7	162.3			
125.1	129.9	129.2	131.9	133.6	133.3	135.5		
231.1	233.5	239.0	245.5	254.6	265.4			
149.8	148.3	149.4	153.2	156.5	157.9			
185.8	203.4	210.5	207.2	231.8	219.1	258.2		
223.8	221.5	241.2	234.1	248.3	233.1	266.3		
Index Numbers 1961 = 100								
143.6	147.9	151.3	153.8	159.8	160.8	171.2		

Num-ber	Series	1964				1965				I
		I	II	III	IV	I	II	III	IV	
	PRODUCTION:									
1	Manuf. Ind. Prod. Vol.	117.2	120.7	120.3	121.1	123.8	126.6	125.4	127.0	126.0
2	Tr. Goods Inds. Prod. Vol.	118.9	119.8	121.8	123.0	121.9	122.7	126.7	129.8	126.7
3	Tr. Goods Inds. Prod. per Head	109.7	110.1	111.6	113.3	112.3	112.7	115.8	119.1	115.6
5	Electricity Output	125.6	132.2	130.3	136.9	143.8	142.9	147.5	154.1	149.9
	MANPOWER									
6	Sales of Insurance Stamps	106.0	109.7	104.5	108.0	100.6	110.1	101.2	110.7	104.5
7	No. in Tr. Goods Inds.	108.5	108.9	109.2	108.7	108.7	109.1	109.6	109.1	109.8
8	Benefit Claims	102.2	103.0	106.9	103.2	101.4	100.5	105.9	116.5	111.9
9	Live Register/Insured	98.1	100.0	100.2	105.2	96.3	95.9	97.9	103.4	101.9
	PRICES:									
11	Wholesale (not corrected)	107.6	110.9	111.6	112.1	113.9	115.7	114.7	114.4	115.9
12	Consumer (not corrected)	109.6	113.9	115.4	116.6	117.9	119.9	120.4	120.4	120.4
13	Agricultural	106.2	111.5	116.7	117.8	118.6	118.6	116.6	115.7	115.2
	EARNINGS: Tr. Goods Inds.:									
19	Money Earnings	124.1	129.9	129.5	128.5	129.3	130.7	132.9	134.2	134.6
20	Real Earnings	113.1	113.9	113.8	110.1	109.7	108.8	110.3	111.5	111.7
	CONSUMPTION:									
21	Retail Sales	117.9	122.5	127.2	127.4	129.7	131.8	133.8	131.8	130.4
22	New Cars Registered	127.6	147.5	151.6	156.3	166.6	158.6	155.9	110.2	161.2
	GOVERNMENT:									
23	Revenue Receipts	133.3	145.3	144.9	150.7	153.6	170.9	155.6	165.8	164.6
24	Exchequer Expend.	132.2	142.5	157.3	152.5	164.7	165.3	164.3	177.6	169.7
	EXTERNAL TRADE:									
25	Import Value	131.2	135.1	134.8	132.1	140.3	147.7	147.2	135.8	137.3
26	Export Value	126.6	127.4	121.2	119.1	112.9	115.2	133.5	132.5	131.4
27	Import Excess	141.3	152.0	164.9	160.9	201.4	220.1	177.8	142.8	150.3
28	Import Volume	130.2	133.6	132.9	129.8	137.4	143.3	143.0	131.9	133.3
29	Export Volume	120.6	116.3	110.3	109.7	102.6	104.1	113.9	121.2	120.7
	BANKING, FINANCE:									
30	Money Supply	130.2	130.5	136.3	137.6	136.8	141.0	142.9	142.6	145.7
31	Bank Debits— Non-Govt.	140.2	135.2	137.2	144.3	143.3	181.9	179.9	176.8	179.9
32	Bills, Loans, Advances	129.0	136.6	138.9	143.0	146.8	155.9	155.9	155.6	157.6
34	External Assets	108.6	108.7	112.5	110.3	106.9	100.5	100.2	103.0	107.4
35	External Monetary Reserves	109.4	110.3	112.0	111.3	107.9	102.5	100.6	104.2	104.9

NOTES: a Average figures April–October 1966 allocated according to normal seasonal pattern.
b Figures unavailable due to bank dispute.

	1966			1967				1968				1969		
II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
123.8	132.9	132.3	136.0	141.0	137.6	144.6	146.2	154.9	156.3	159.8	150.1			
124.7	135.6	134.5	138.8	144.4	142.1	144.1	148.9	159.3	161.5	164.3	154.7			
114.0	122.2	121.2	126.0	129.9	127.9	129.0	133.9	140.6	142.2	142.7	131.1			
158.2	158.2	169.1	163.9	181.0	178.9	182.9	180.0	196.3	199.8	196.0	213.5	215.4		
101.8	110.5	110.4	103.2	111.7	111.7	108.1	106.2	111.7	106.7	108.4	111.6			
109.6	111.2	111.2	110.3	111.2	111.3	111.9	111.3	113.4	113.7	115.2	118.1			
121.7	117.3	125.0	118.8	118.8	125.3	122.3	121.7	142.5	153.3	131.5	128.1	129.6		
110.4	107.9	110.1	113.5	112.9	122.7	121.0	114.5	119.2	124.5	115.7	112.2	108.7		
118.3	117.1	116.8	118.8	120.7	119.4	121.2	125.2	127.2	127.2	129.2	133.6	136.8		
122.7	124.7	125.0	125.2	127.3	127.4	128.3	130.9	133.0	133.3	135.2	139.7	142.1	144.5	
118.0	114.9	114.9	117.3	117.4	117.0	125.1	129.9	129.2	131.8	133.6	136.2	135.5		
140.8	148.7	150.3	151.9	151.4	153.1	158.8	160.4	164.3	168.7	175.0	182.4			
114.6	119.2	120.2	121.3	118.8	120.1	123.8	122.6	123.5	126.7	129.3	130.5			
130.4	139.8	138.7	139.3	138.1	140.9	143.6	147.9	151.3	153.8	159.8	160.8	171.2		
111.4	163.6	121.1	121.1	146.6	129.8	149.5	165.9	174.3	166.7	227.2	160.1	190.0		
a 180.0	a 184.4	a 198.1	187.2	219.9	212.9	211.4	201.4	228.2	244.6	259.1	227.3	286.6		
a 169.7	a 177.3	a 209.5	180.1	189.1	222.6	222.0	208.9	225.9	259.7	252.2	247.2	256.1		
125.9	159.3	150.5	152.4	144.8	152.6	147.2	174.1	183.1	190.4	202.7	199.5	234.4		
121.4	137.2	148.5	147.6	160.5	158.6	162.7	170.6	188.1	182.5	194.9	185.1	216.0		
135.9	208.3	154.9	162.9	109.8	139.2	119.2	181.7	171.6	207.5	219.8	231.1	274.9		
121.1	157.5	145.6	148.7	141.5	149.9	146.1	159.9	165.5	162.9	182.2	172.2	203.8		
108.6	126.5	137.6	132.6	144.2	144.6	146.2	144.7	157.5	152.9	162.4	152.3	174.1		
b	b	155.5	155.4	156.1	163.9	165.1	171.1	171.1	177.7	179.8	184.5	186.3		
a 172.7	a 174.8	a 194.1	202.3	224.6	214.5	222.6	219.0	221.5	254.9	270.3	268.8	311.0		
b	b	165.1	167.2	164.7	168.9	176.9	186.6	193.7	197.5	201.4	215.5	225.6		
b	b	112.1	117.3	124.2	131.1	133.4	130.5	118.3	113.4	115.7	109.0	106.5		
b	b	110.8	115.1	121.9	127.9	132.6	132.2	130.4	130.4	132.7	128.9	125.8		

SECTION 7: CHARTS OF ECONOMIC SERIES, SEASONALLY CORRECTED

Series 1: Manf. Inds. Prod. Vol.
1961 = 100 (log. scale)
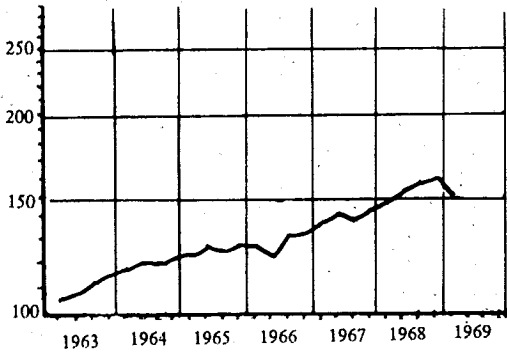
Series 2: Tr. Goods Inds. Prod. Vol.
1961 = 100 (log. scale)
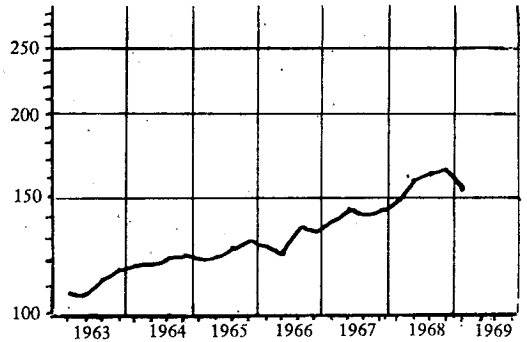
Series 3: Tr. Goods Inds. Prod. Per Head
1961 = 100 (log. scale)
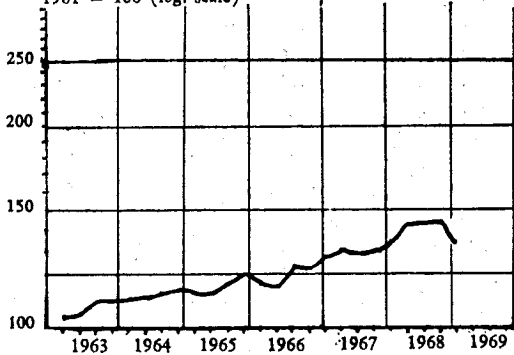
Series 5 : Electricity Output
1961 = 100 (log. scale)
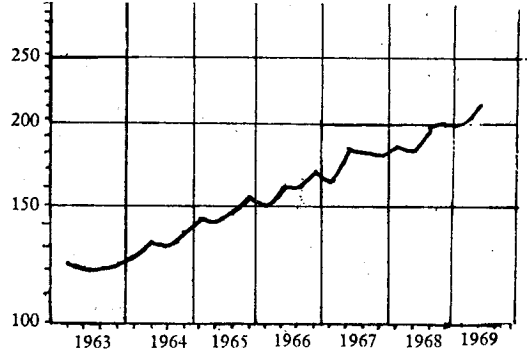
Series 6: Sale of Insurance Stamps
1961 = 100 (log. scale)
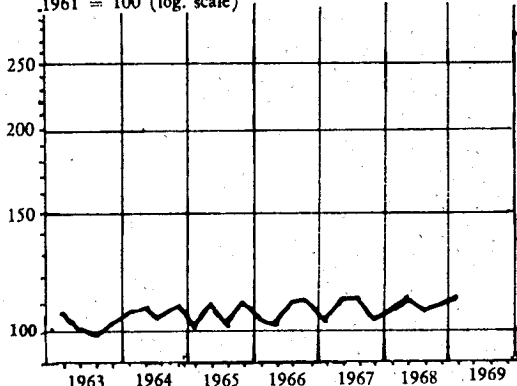
**Series 7: No. in Tr. Goods Inds.**
1961 = 100 (log. scale)

Series 8: Benefit Claims
1961 = 100 (log. scale)

Series 9: Live Registered/Insured
1961 = 100 (log. scale)

Series 12: Consumer Prices (not corrected)
1961 = 100 (log. scale)

Series 13: Agricultural Prices
1961 = 100 (log. scale)

Series 19: Trns. Goods Inds.: Money Earnings
1961 = 100 (log. scale)

Series 20: Real Earnings
1961 = 100 (log. scale)

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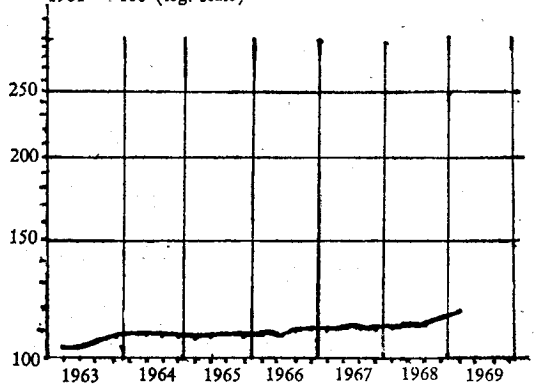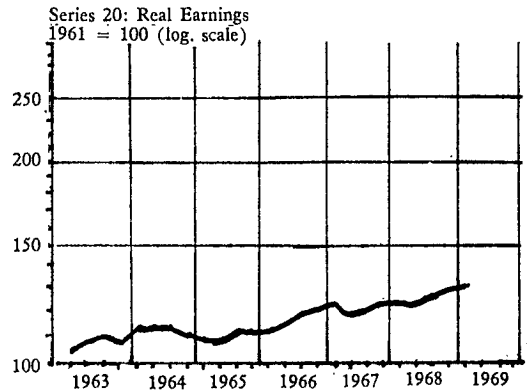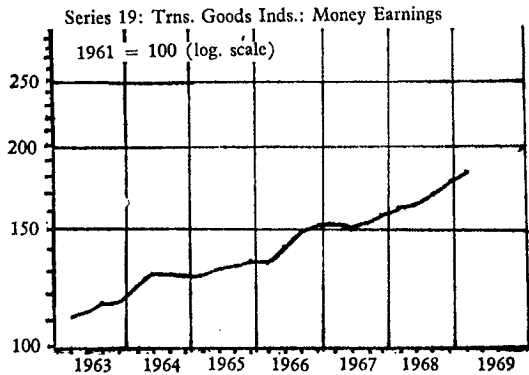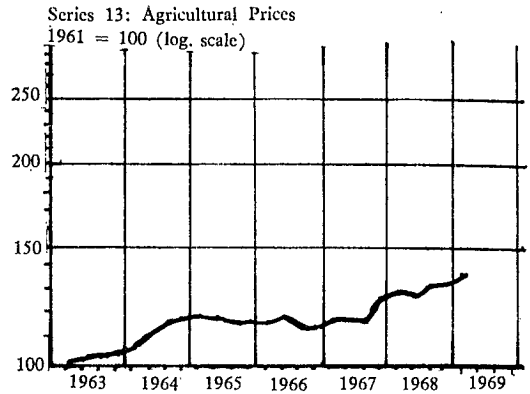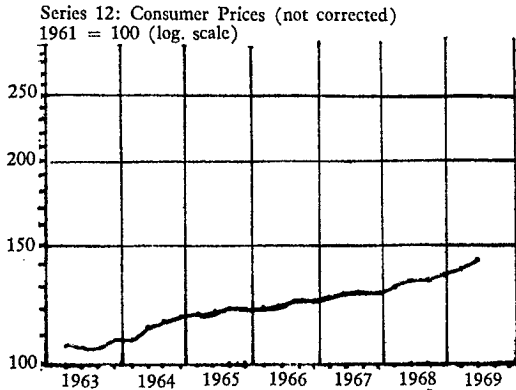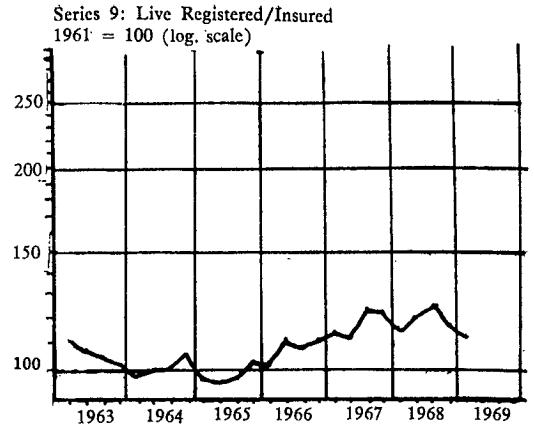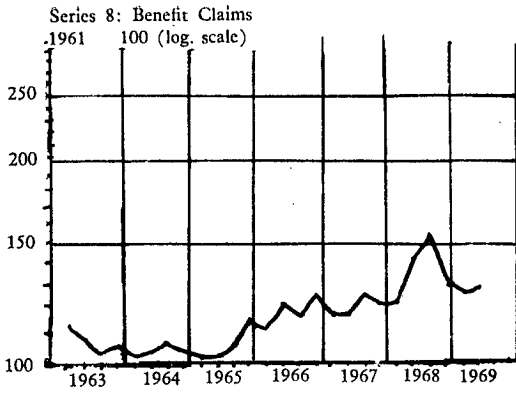
Series 21: Retail Sales
1961 = 100 (log. scale)
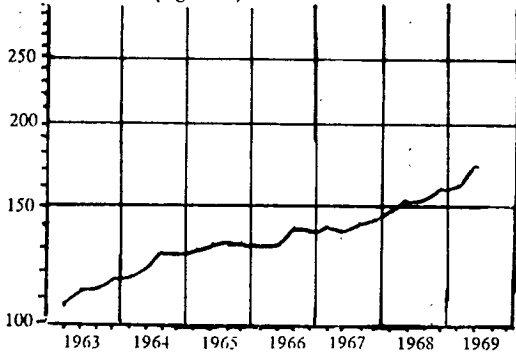
Series 22: New Cars Registered
1961 = 100 (log. scale)
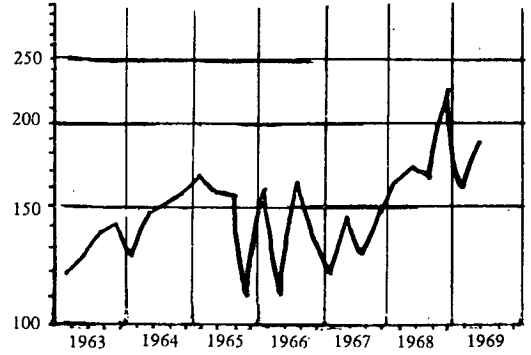
Series 23: Revenue Receipts
1961 = 100 (log. scale)
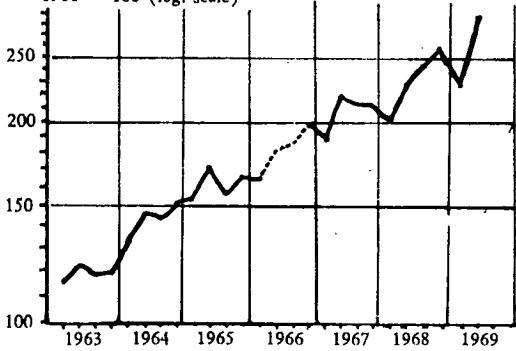
Series 24: Exchequer Expenditure
1961 = 100 (log. scale)
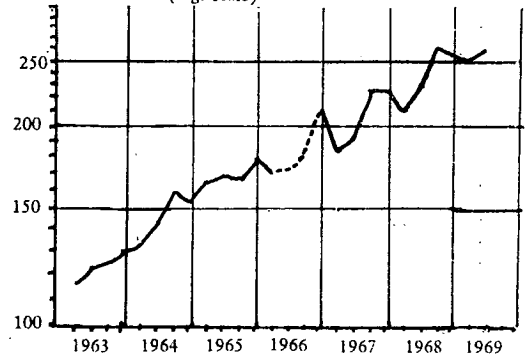
Series 25: Import Value
1961 = 100 (log. scale)
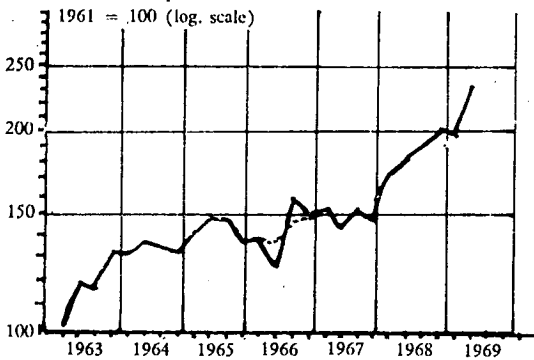
Series 26: Export Value
1961 = 100 (log. scale)
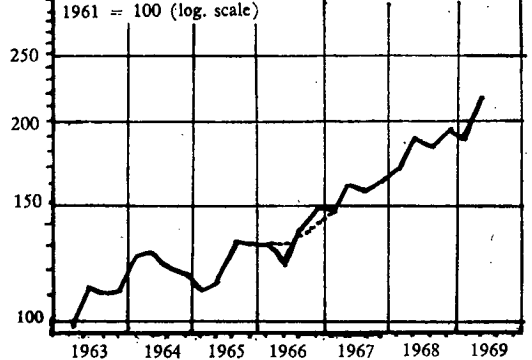
Series 28: Import Volume
1961 = 100 (log. scale)
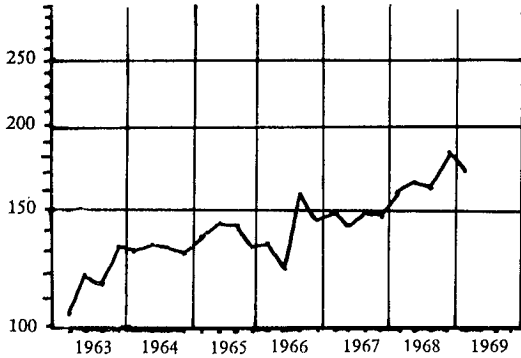
Series 29: Export Volume
1961 = 100 (log. scale)
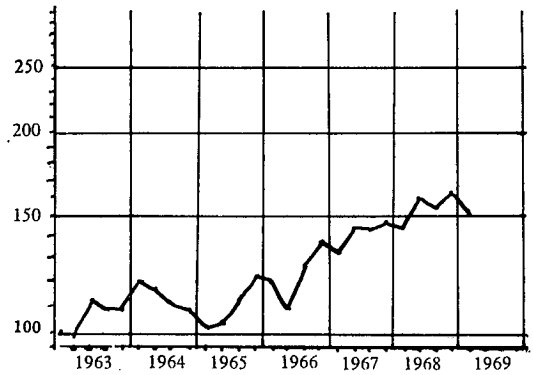
Series 30: Money Supply
1961 = 100 (log. scale)
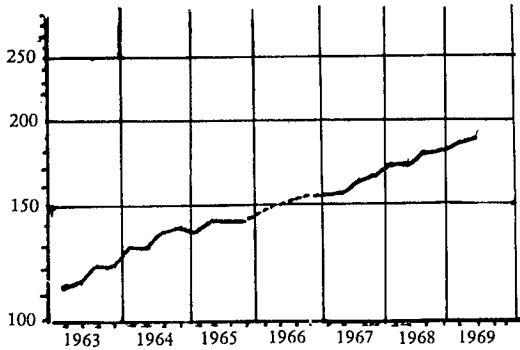
Series 31: Bank Debits — Non Govt.
1961 = 100 (log. scale)
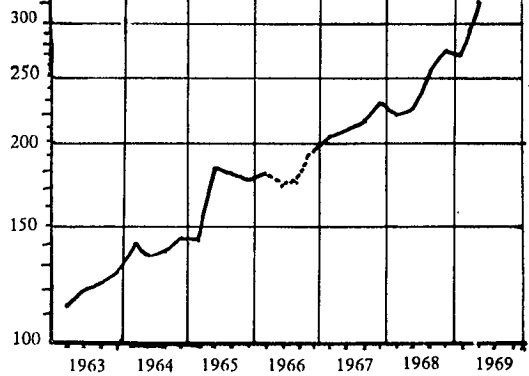
Series 32: Bills, Loans, Advances
1961 = 100 (log. scale)
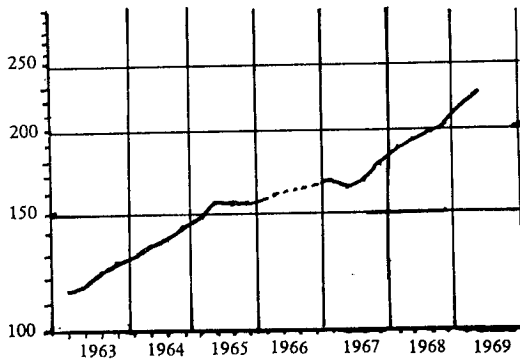
Series 35 : External Monetary Reserves
1961 = 100 (log. scale)

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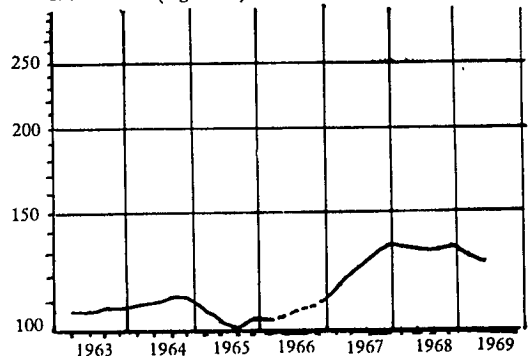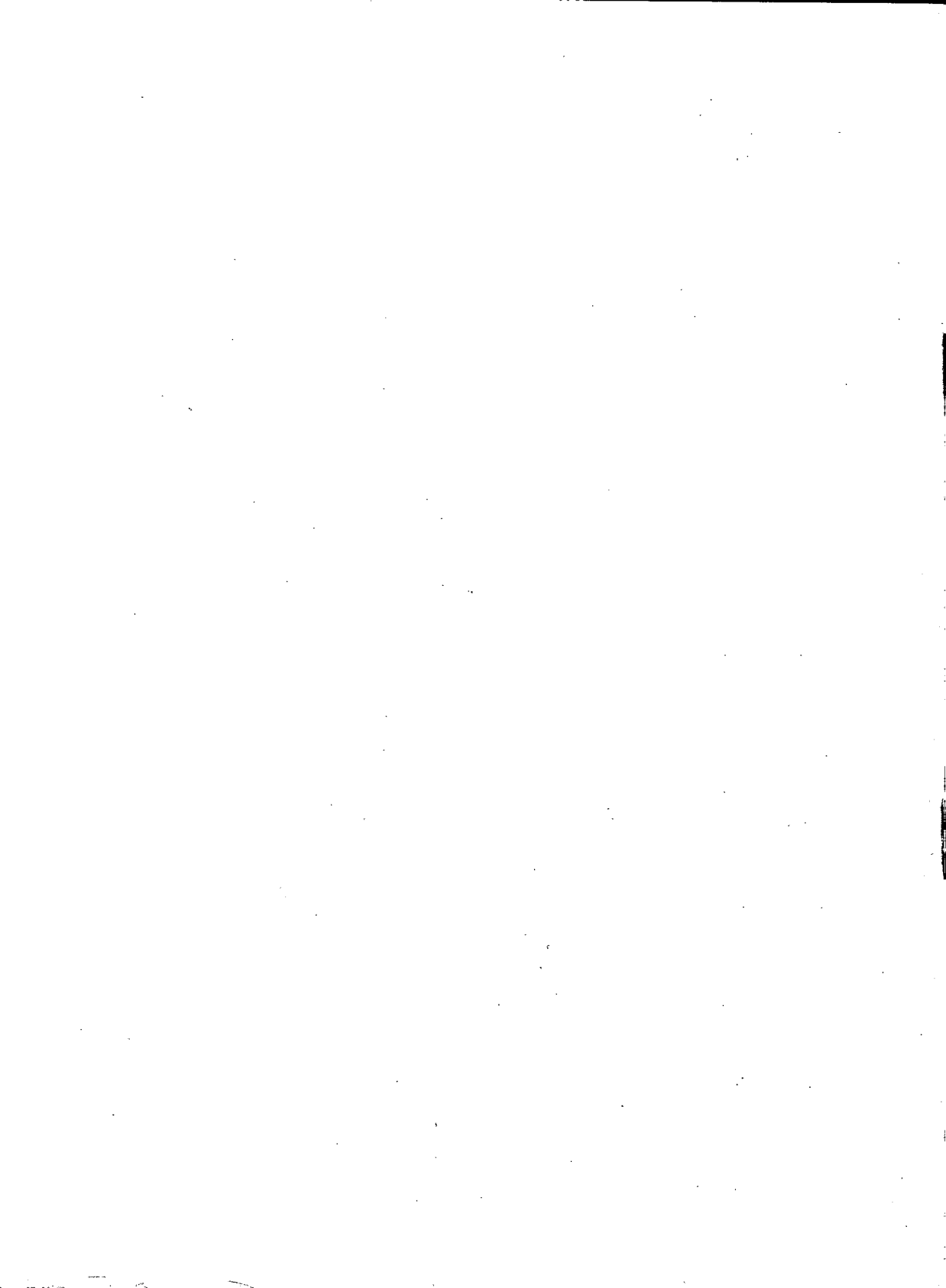
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